DECEMBER 1, 1934

Railway Age

FOUNDED IN 1856

BEAVER FALLS, PA

A Call to Action in Behalf of Business Recovery, addressed to the National Administration, National and State Legislators and the Public.

Probably every American manufacturer today, who strives to interlock his own success with that of the whole country, is endeavoring to live up to the plans designed by the administration for the bringing back to normalcy, the business of this country. We know that we are.

Established over fifty years ago, our firm is old enough to have conceived, tested, made the first installation and perfected the idea of heating passenger cars by utilizing steam from the locomotive.

Today, many other firms who have developed their own art for the advancement of the comfort and safety of passenger transportation, are dependent, as we are, on the solvency and prosperity of the Railroads.

We ask a "non political" and a constructive consideration of their income problems.

Gold Car Heating & Lighting Company

NEW YORK

SINCE 1879 MANUFACTURERS OF STEAM AND ELECTRIC SPECIALTIES FOR PASSENGER CAR HEATING

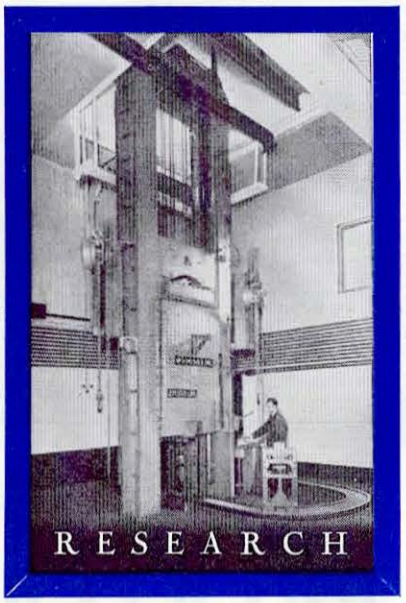
Published weekly by Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the Act of March 3, 1879.

THE RAILROADS ARE THE WAY TO BUSINESS RECOVERY

The stimulation of railroad buying is a sure means for relieving unemployment and for effecting business recovery.

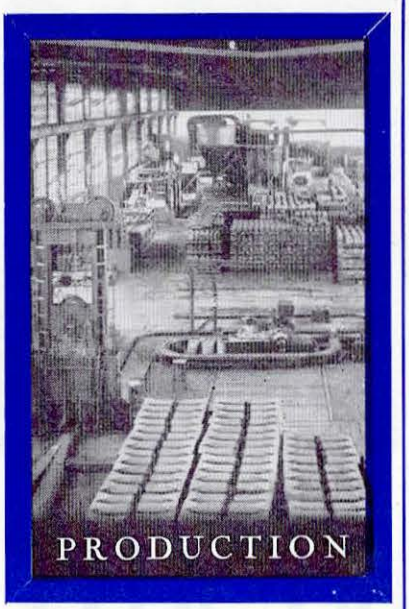
The railroads are the best customers of the durable goods industries, and activity in these heavy industries is indispensable to national prosperity because of the millions of men and women normally on their payrolls and the wide-spread location of their plants.

With adequate earnings resulting from prompt legislative aid, the railroads would place long deferred orders for supplies and equipment.



The number of employees engaged in manufacturing Miner shock absorbing devices for the railroads could be increased by three hundred per cent if normal railroad buying were restored.

W. H. MINER INC. CHICAGO

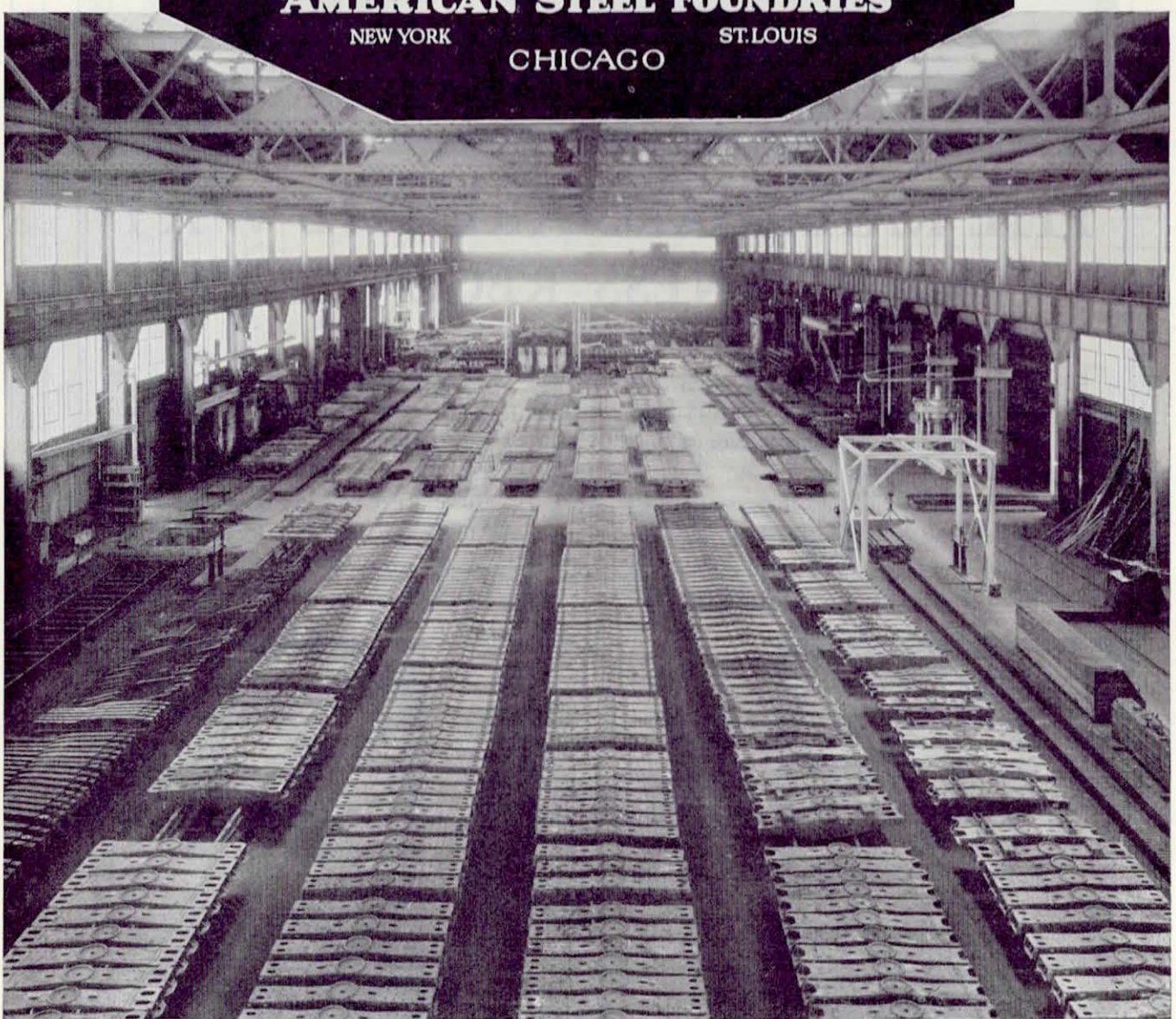


CAST STEEL SIDE FRAMES

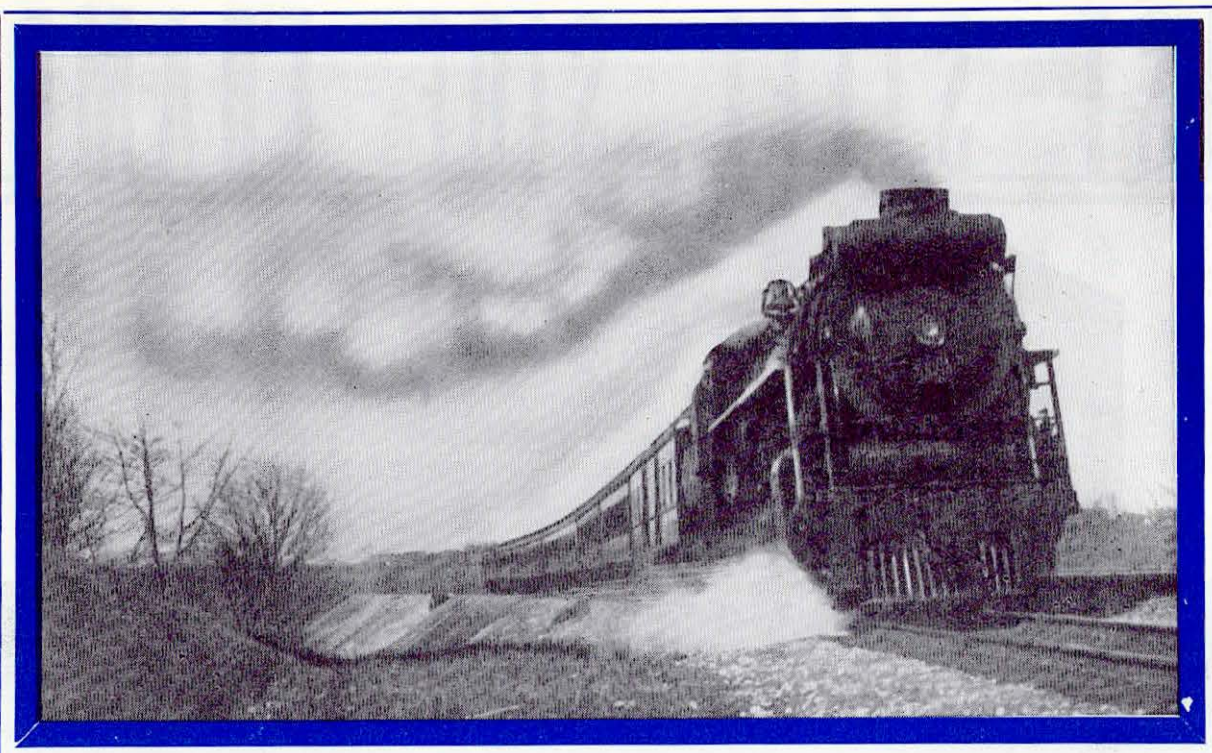
Thirty-five years experience in the development and manufacture of cast steel products has created a standard of quality which is reflected in the universal acceptance of American Steel Foundries products in the construction and maintenance of modern railway cars and locomotives.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS



CAST STEEL TRUCK BOLSTERS



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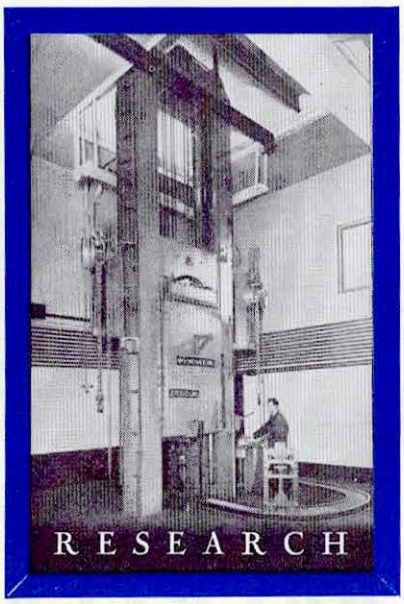

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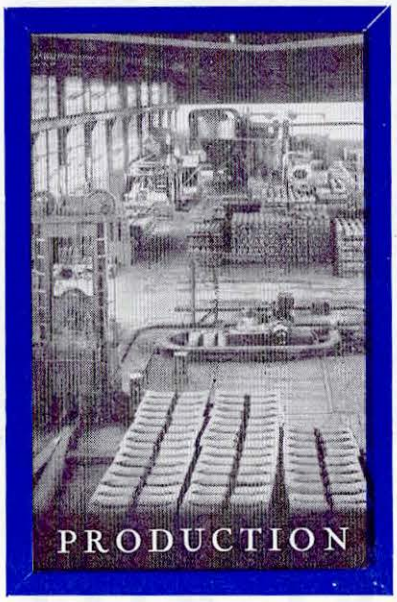

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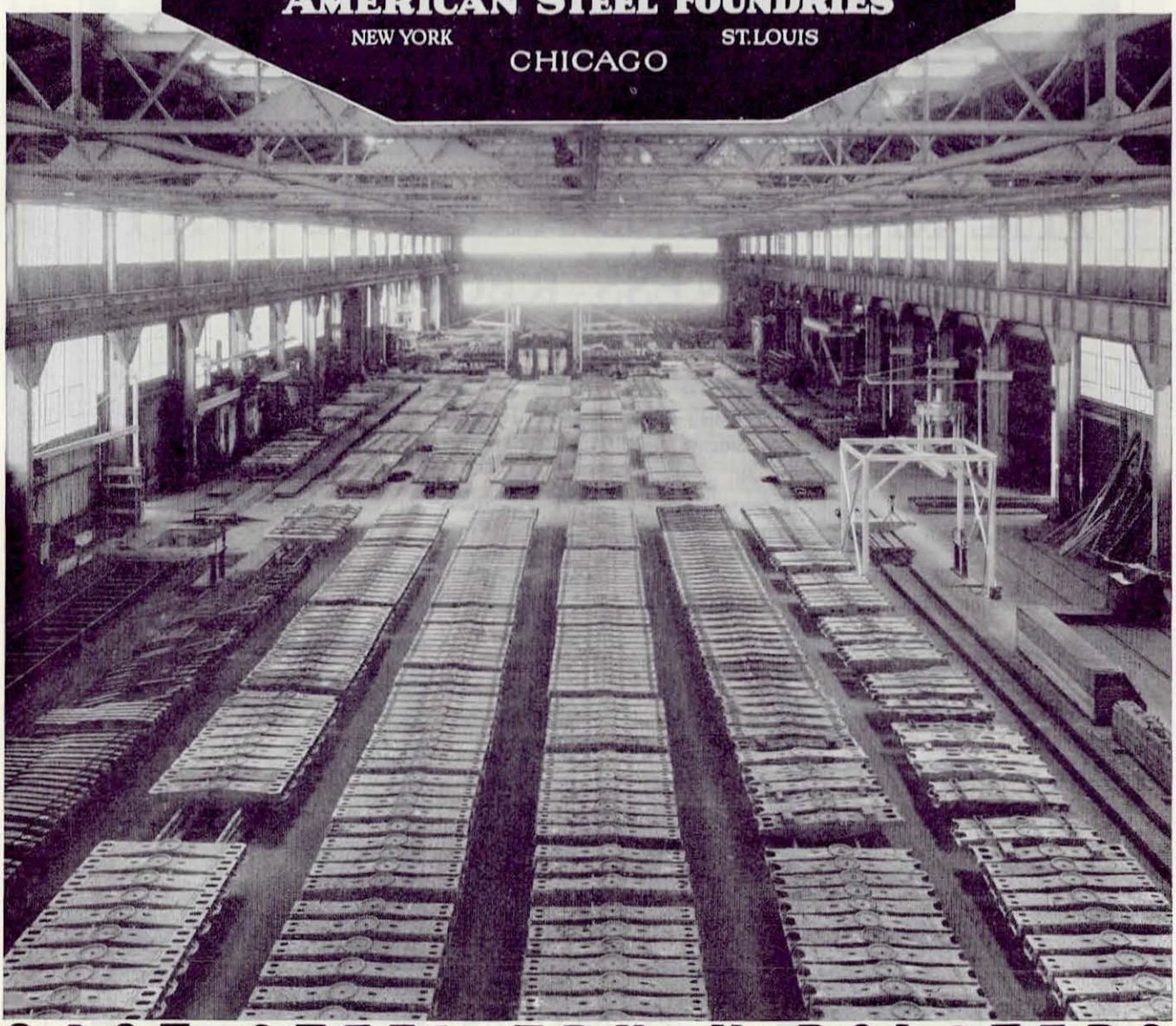
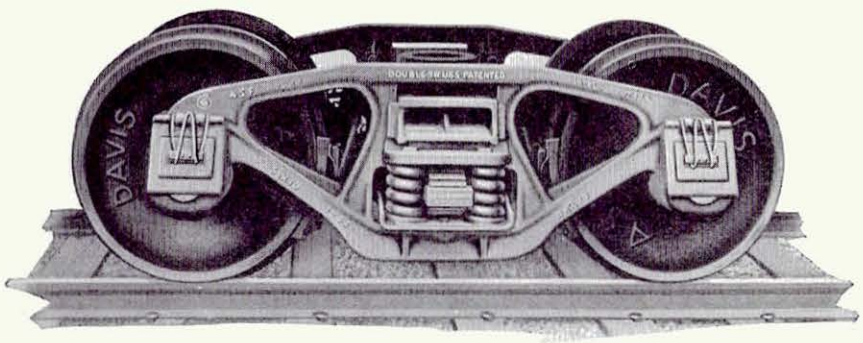


CAST STEEL TRUCK BOLSTERS

Prosperity of the railroads essential to the prosperity of the durable goods industry and the thousands of workmen who depend upon them for their well-being



Improved Double Truss Truck
With Improved Riding Coil Elliptic Spring Group

A RAILROAD problem of first magnitude is the need for rehabilitation and rebuilding of plant and equipment. The railroads require modern, more efficient cars and locomotives to improve their competitive position and to lower operating costs.

The modernization of existing freight cars by the substitution of cast steel trucks for the antiquated arch bar truck will go far toward the elimination of costly train delays, reduce maintenance expenses and contribute to the more economical handling of trains.

These results justify a capital expenditure program to bring about required modernization.

The savings that would be realized in operating and maintenance costs by the modernization of existing equipment and by the purchase of new cars and locomotives will, in a comparatively short period, finance the expense of rebuilding or purchasing new units.

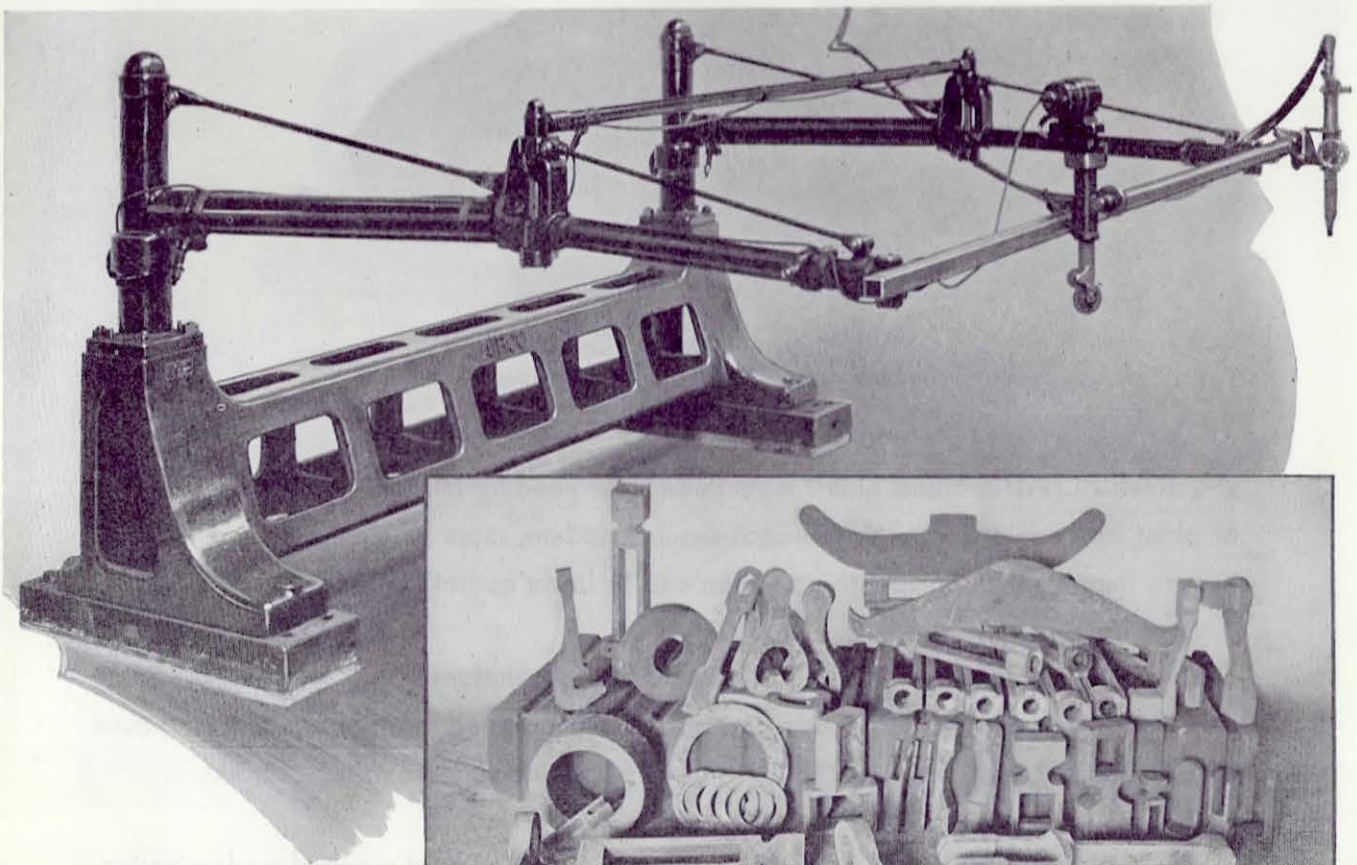
To bring about these desirable conditions on the American railroads, requires relief from restrictive regulations and uniformity of supervision for all modes of transportation.

Restoration of railways to normal purchasing power and freedom from obstructing regulations, would immediately afford employment for thousands of men in the plants of the durable goods industry and release thousands of tons of freight from every part of the country.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

AIRCO is



Railroad Shop Executives are invited to write for this illustrated, 92-page MACHINE GAS CUTTING book which fully tells the story of the process and machines.

The AIRCO-DB No. 6 OXYGRAPH

. . . and a few examples of its work

This machine is widely used in Railroad shops for cutting out a hundred and one different locomotive and car parts, a few of which are illustrated. A motor-driven manually guided tracer is available with which parts can be accurately reproduced from outline drawings or templets. The OXYGRAPH is but one of AIRCO'S complete line of machines which covers the entire range and scope of MACHINE GAS CUTTING.

Anything and Everything for GAS and

ready to help

An ailing individual cannot be restored to normal health if the cure of a weakened vital organ is neglected. The railroads constitute one of the Nation's vital organs. This must be obvious to anyone who considers the great masses of people they employ, the huge quantities of equipment and supplies they consume and the indispensable service they perform. It is hardly conceivable that the Nation can be restored to normal economic well-being unless measures are taken to bring back prosperity to the Railroads.

The present Administration must appreciate this fact, and in its sincere efforts to achieve economic recovery is unquestionably concerned with the problem of rebuilding Railroads' earnings and restoring their power to employ and purchase. Bills designed to give relief to the Railroads from existing restrictive laws and unregulated competition are now before the Congress. And with strong indication that they will shortly be passed, the outlook is promising.

Meanwhile, one thing the Railroads can do to help themselves is to take full advantage of every available means by which operating and maintenance costs can be cut. Unusual possibilities in this direction are offered by MACHINE GAS CUTTING. With this modern process, car and locomotive parts can be made in a fraction of the time required by other methods and at a fraction of the cost.

Other cost-cutting means include: AIRCO-WELDING, a faster and more economical process for building up rail ends, frogs and switch points; heat treating of rail ends; locomotive and car scrapping; use of welding and cutting for maintenance of locomotives and cars.

AIR REDUCTION SALES CO., through its nation-wide organization, has had the privilege of cooperating in a thoroughly practical way with many Railroads in applying these various processes and in securing maximum benefit from their employment. To all Railroads AIRCO offers this same full measure of cooperation.

AIR REDUCTION SALES CO.

NRA CODE

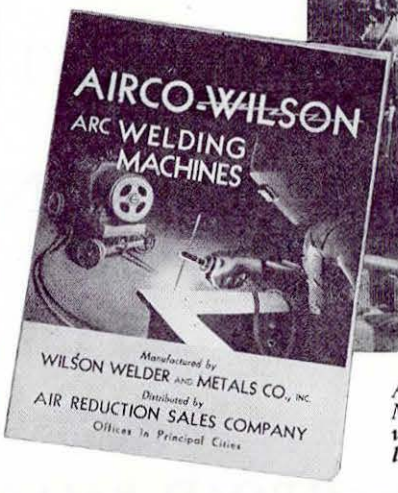
General Offices: 60 East 42nd St., New York, N. Y.

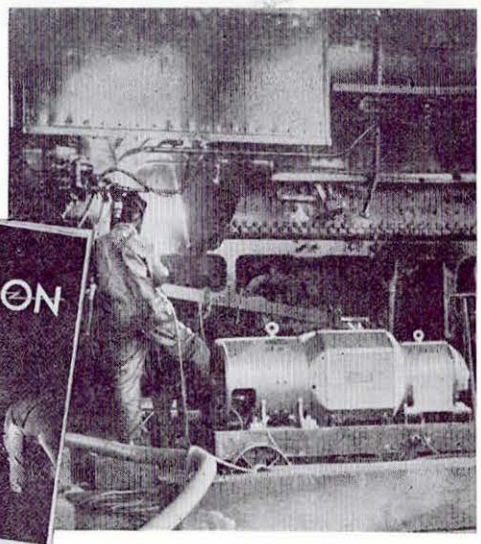
DISTRICT OFFICES and DISTRIBUTING STATIONS in PRINCIPAL CITIES

Now, AIRCO is also prepared to supply all ARC WELDING needs

As distributors of AIRCO-WILSON ARC WELDING MACHINES and AIRCO and WILSON Electrodes, products of the WILSON WELDER and METALS CO., Inc., AIRCO is now in a position to supply any and all welding needs, both gas and electric.

AIRCO-WILSON WELDERS excel in arc stability which is essential to sound, economical arc welding. Combined with this is a design that is at once extremely simple, mechanically sound and rugged and electrically efficient. A new Bulletin makes clear the details and advantages of AIRCO-WILSON design and construction and gives data on the complete line which includes types and capacities for all arc welding requirements. Write for it.

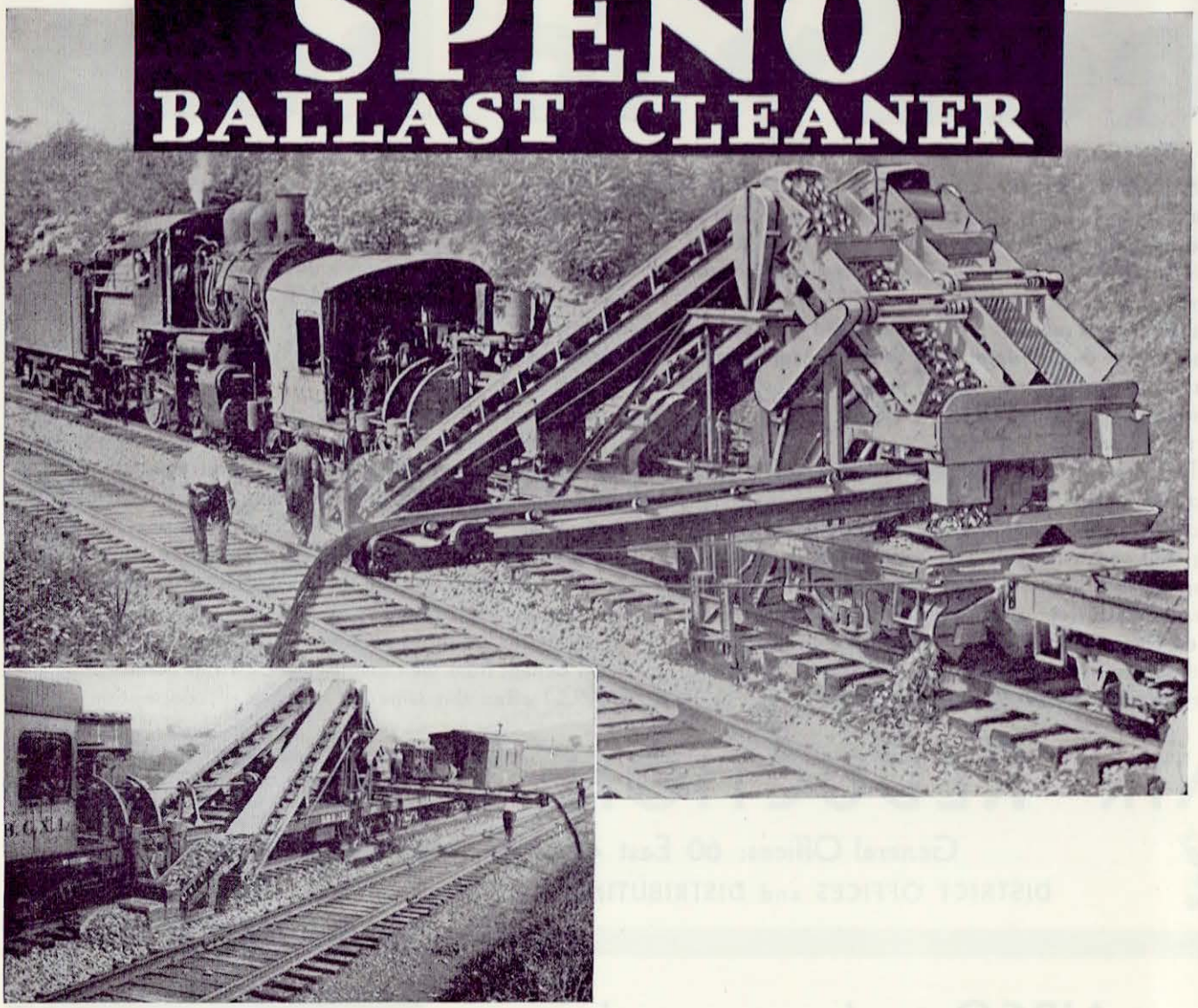




AIRCO-WILSON Type SA, One Arc Motor-Generator Unit at work welding up caulking edge of a locomotive firebox.

ELECTRIC WELDING and GAS CUTTING

SPENO BALLAST CLEANER



FASTEST AND MOST ECONOMICAL METHOD OF CLEANING BALLAST

Full particulars gladly furnished by

FRANK SPENO RAILROAD BALLAST CLEANING CO., Inc.

628 WEST STATE STREET ITHACA, N. Y.

TO THE COUNTRY'S LEGISLATORS:

DEATH, destruction and despair lurk at every railroad crossing. There have been 184,480 casualties at crossings since 1900.

Obsolete laws restrain state and Federal government from stopping the ghastly toll of deaths from such accidents. Appropriations should be legalized for installation of modern, fool-proof equipment to be perpetually maintained by the railroads.

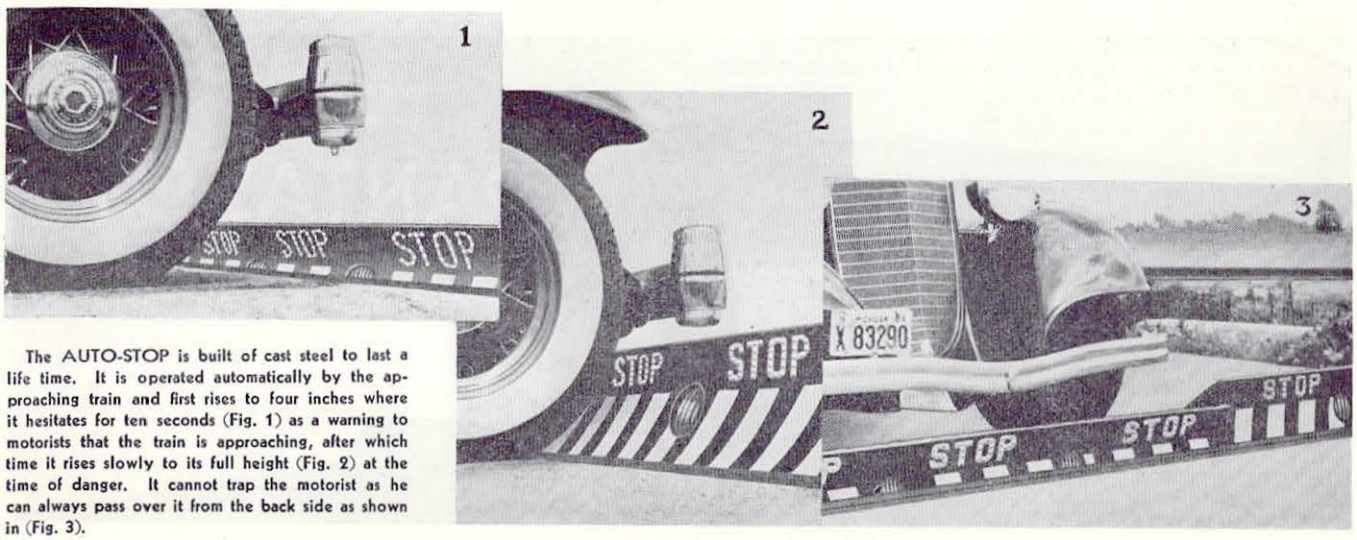
Grade separations at each of the 257,022 crossings in the United States is prohibitive in cost. The average cost of one grade separation will install approximately 20 Auto-Stops! States and railroads spent $300,000,000 for separations in six years. At the end of that period there were 8,000 more crossings than before.

The economical and humane solution is the installation of the Auto-Stop at all unprotected crossings. It is fool-proof, absolute insurance against loss of life or property at grade crossings.

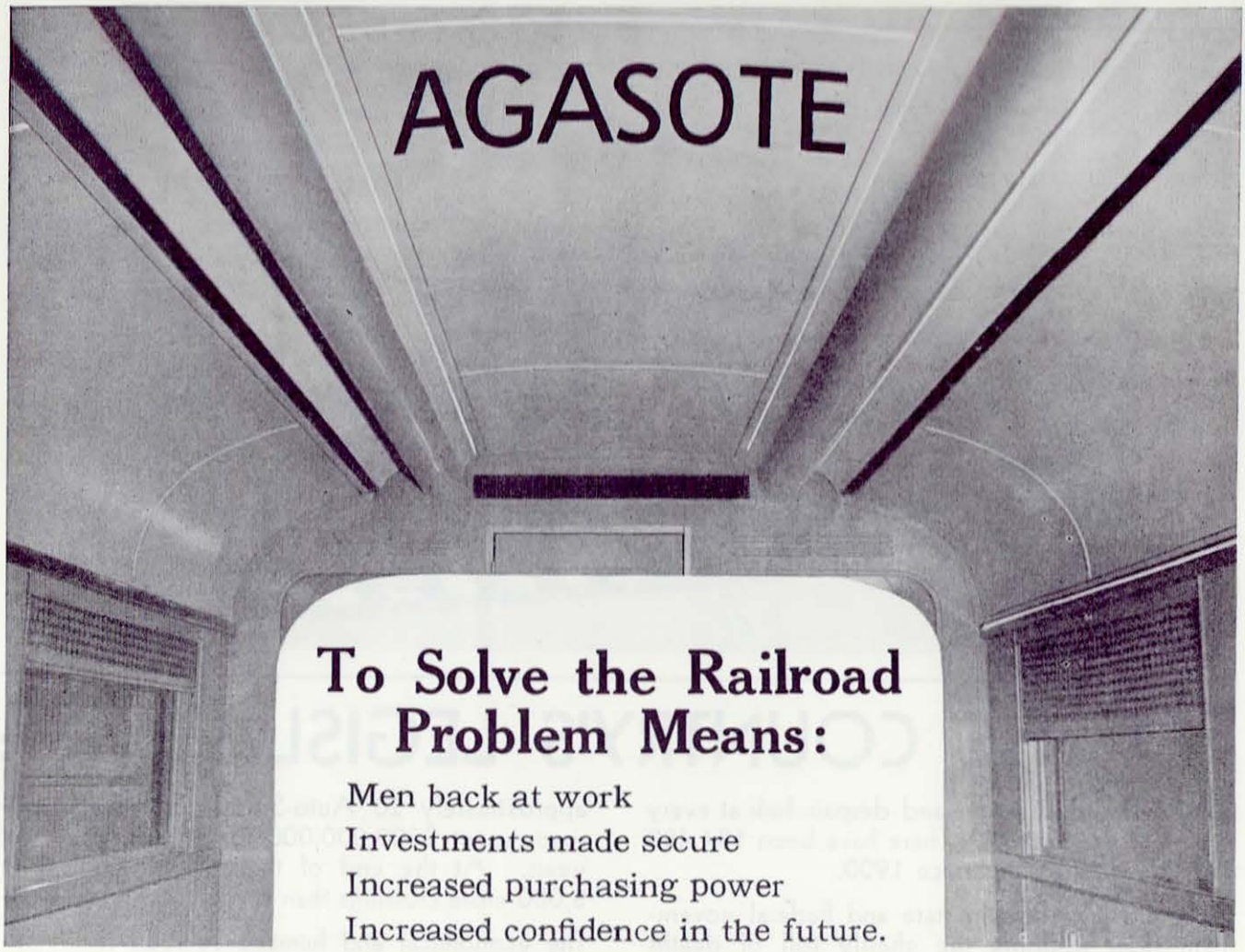
Enable your state to share in current federal appropriations. If your state law is inadequate that law should be amended. Action should be taken at the coming session of your legislature.

EVANS PRODUCTS COMPANY

DETROIT, MICHIGAN



The AUTO-STOP is built of cast steel to last a life time. It is operated automatically by the approaching train and first rises to four inches where it hesitates for ten seconds (Fig. 1) as a warning to motorists that the train is approaching, after which time it rises slowly to its full height (Fig. 2) at the time of danger. It cannot trap the motorist as he can always pass over it from the back side as shown in (Fig. 3).



To Solve the Railroad Problem Means:

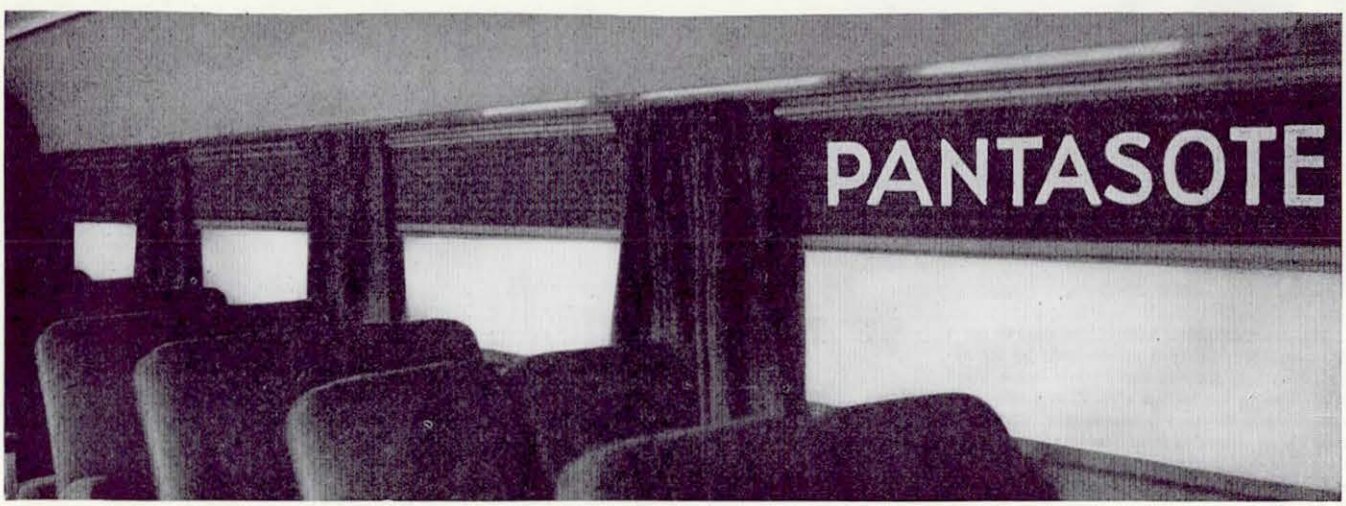
Men back at work
Investments made secure
Increased purchasing power
Increased confidence in the future.

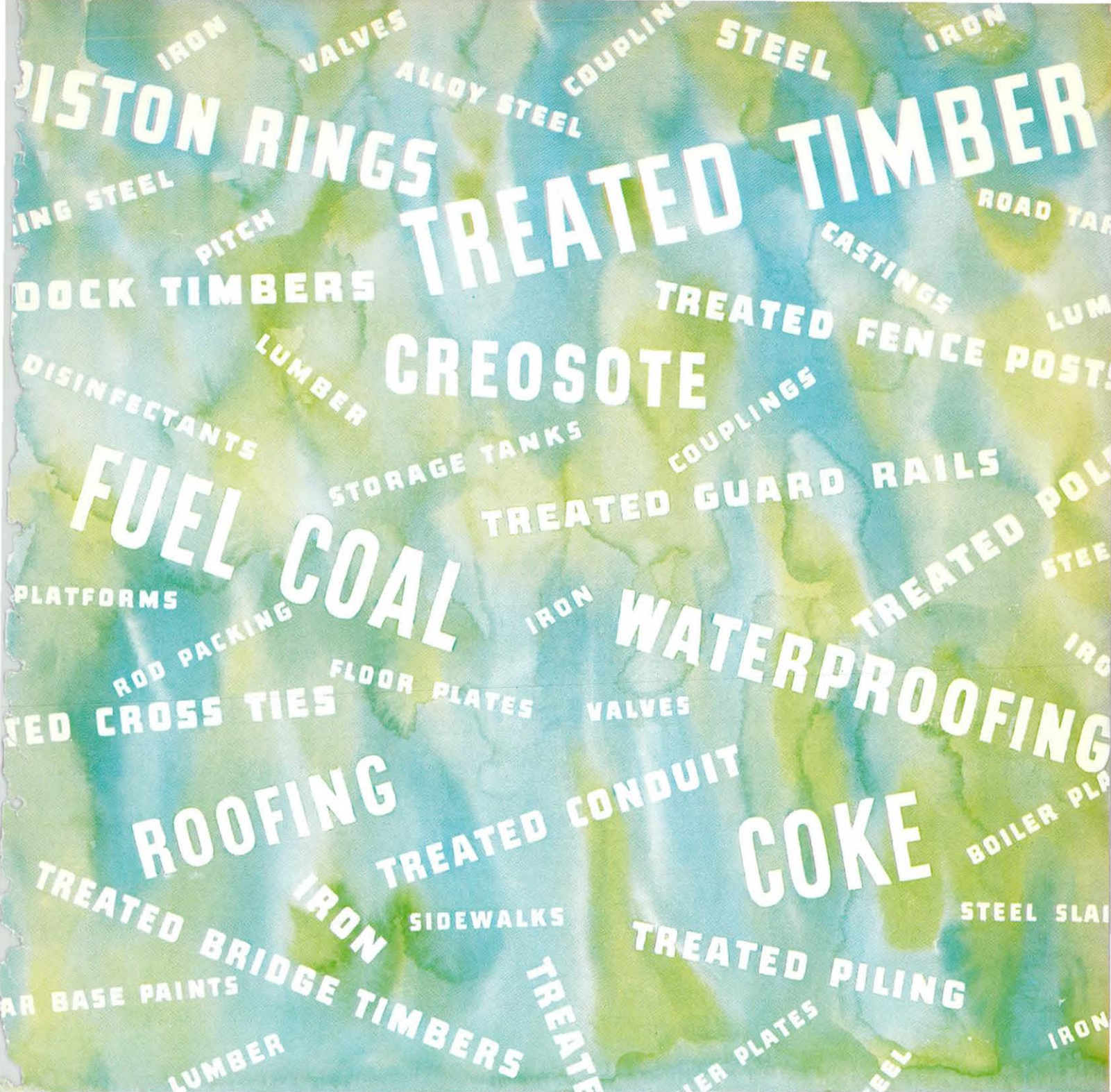
Every industry from Agriculture to Zinc Mining will feel the benefit.

THE PANTASOTE CO., INC.

Sales Office
250 PARK AVE., NEW YORK CITY

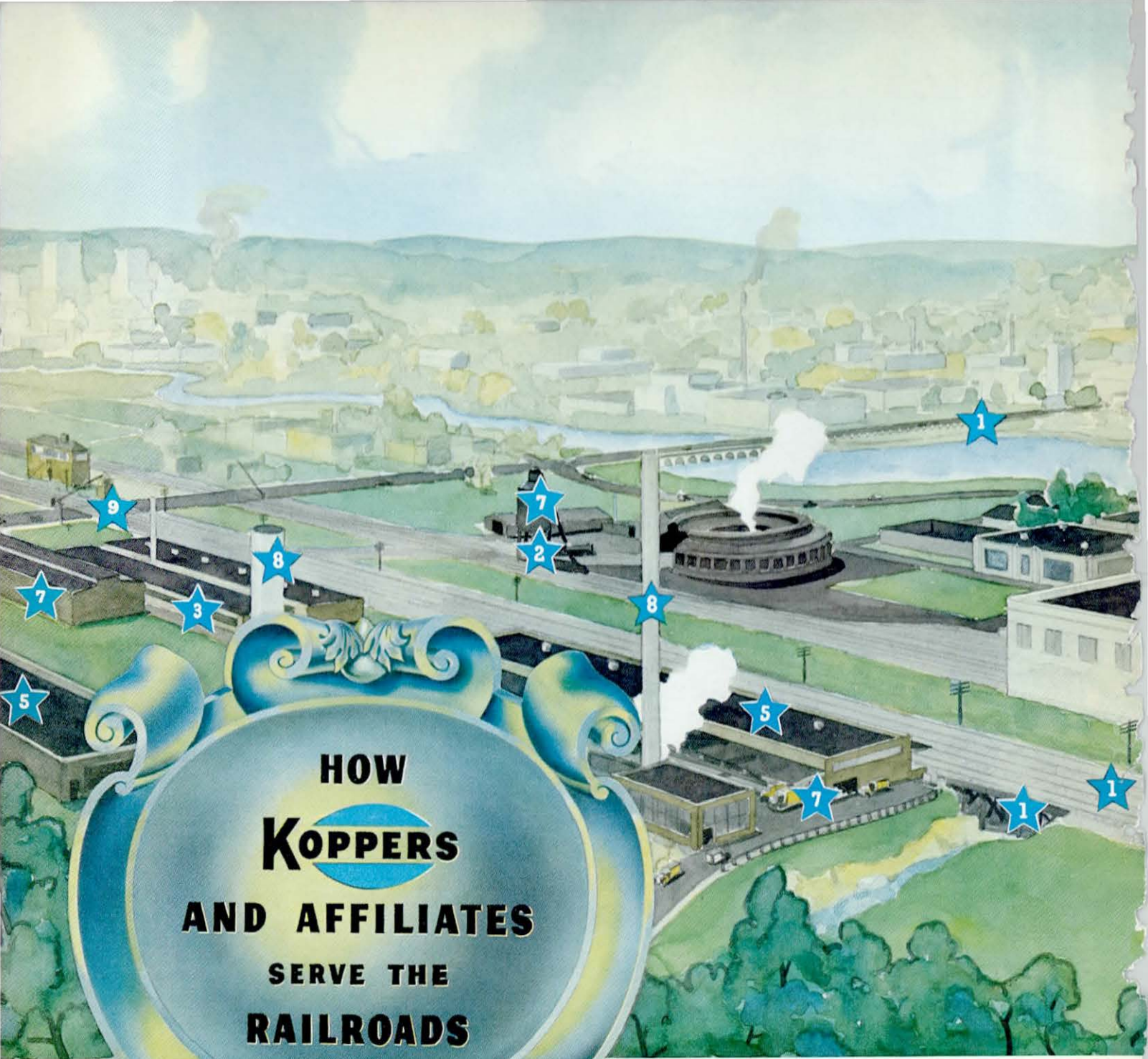
AGASOTE **for Headlining - - - *PANTASOTE* for Curtains and Upholstery**





KOPPERS

AND AFFILIATES



HOW KOPPERS AND AFFILIATES SERVE THE RAILROADS

Products of the Koppers organizations are essential in almost every branch of railroad work . . . in railroad construction and maintenance . . . in bridges, buildings, shops and other structures . . . in power production . . . in waterproofing, weed-killing, heating and in scores of other types of work. The list on this page indicates a few of the products of this group of affiliated companies and the illustration shows some of the places where they are used in the railroad industry.

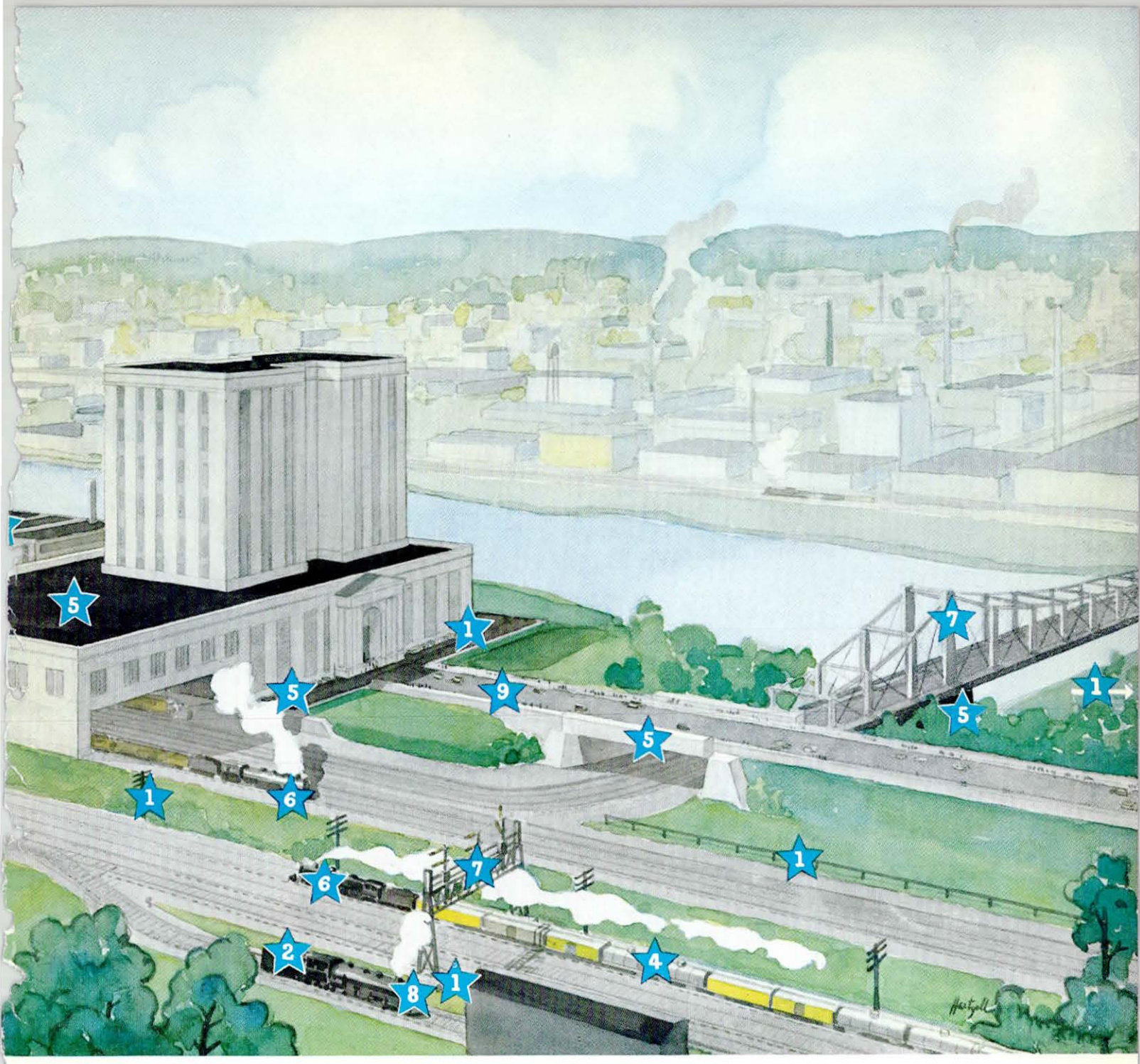
1 TREATED TIMBER

- Treated cross ties
- Treated bridge timbers
- Treated piling
- Treated dock timbers
- Treated poles
- Treated fence posts
- Treated guard rails
- Treated conduit

2 COAL (FUEL)

3 COKE (FOUNDRY, AND FUEL)

4 CREOSOTE AND CREOSOTE COAL-TAR SOLUTIONS



5 ROOFING AND WATERPROOFING MATERIALS

Coal-tar pitch
Tarred felt
Tar saturated fabric
High penetration primer (for dampproofing)
Seal coat (for dampproofing)
Sub-floor tars
Roof cements and fiber coatings
Concrete priming oils
Flashings

6 PISTON RINGS AND PACKING

7 IRON AND STEEL PRODUCTS

Billets
Blooms
Castings
Coal tipples
Coal crushing plants
Coal washing plants
Conveying systems
Couplings
Dryers (Coal)
Floor plates and treads
Ingots
Machinery
Pig Iron
Pipe
Plates
Screens
Sheets
Slabs
Tanks
Tunnel liners
Valves

8 PAINTS

Aluminum paints and vehicles
Bituminous paints
Waterproofing and dampproofing paints
General maintenance paints
Locomotive front end paints

9 ROAD TARS

DISINFECTANTS AND INSECTICIDES

Stock dips
Fly sprays
Larvicides
Household
Deodorizing blocks

LUMBER

WEED KILLERS

Koppers Building, Pittsburgh

KOPPERS affiliates are among the biggest operators in many fields of industry in America.

The largest builders of coke ovens . . . the largest producers of domestic coke . . . one of the three largest producers of all kinds of coke . . . one of the two largest producers of coal . . . one of the three largest producers of crude tar . . . one of the two largest tar refiners . . . one of the two largest wood-treaters.

Koppers is therefore one of the largest shippers of railroad freight in America, and, as a large shipper, it is deeply interested in having the railroads so equipped and so financed that they are able to operate efficiently, economically and profitably.

The Koppers organization also realizes that the railroads are so vital a part of the nation that neither Koppers nor any other large industrial organization can enjoy long-enduring prosperity without railroad prosperity.

KOPPERS AND AFFILIATES

THE KOPPERS COMPANY
PITTSBURGH, PA.

KOPPERS COAL AND TRANSPORTATION CO.
PITTSBURGH, PA.

KOPPERS GAS & COKE COMPANY
PITTSBURGH, PA.

NEW ENGLAND COAL & COKE COMPANY
BOSTON, MASS.

HAMILTON COKE AND IRON COMPANY
HAMILTON, OHIO

MONTREAL COKE AND MANUFACTURING COMPANY
MONTREAL, CANADA

KOPPERS PRODUCTS COMPANY
PITTSBURGH, PA.

THE WHITE TAR COMPANY
KEARNY, N. J.

ALAN WOOD STEEL COMPANY
CONSHOHOCKEN, PA.

THE WOOD PRESERVING CORPORATION
PITTSBURGH, PA.
AYER AND LORD DIVISION
CHICAGO, ILL.
CENTURY DIVISION
PITTSBURGH, PA.
NATIONAL LUMBER & CREOSOTING CO.
TEXARKANA, ARK.-TEX.

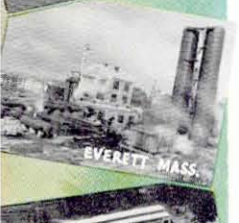
THE BARTLETT HAYWARD COMPANY
BALTIMORE, MD.

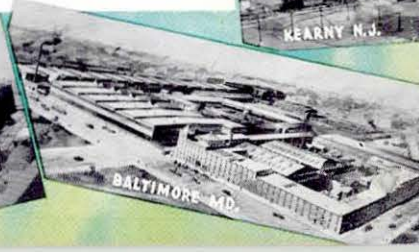
AMERICAN HAMMERED PISTON RING CO.
BALTIMORE, MD.

WESTERN GAS CONSTRUCTION COMPANY
FORT WAYNE, IND.

KOPPERS RHEOLAVEUR COMPANY
PITTSBURGH, PA.

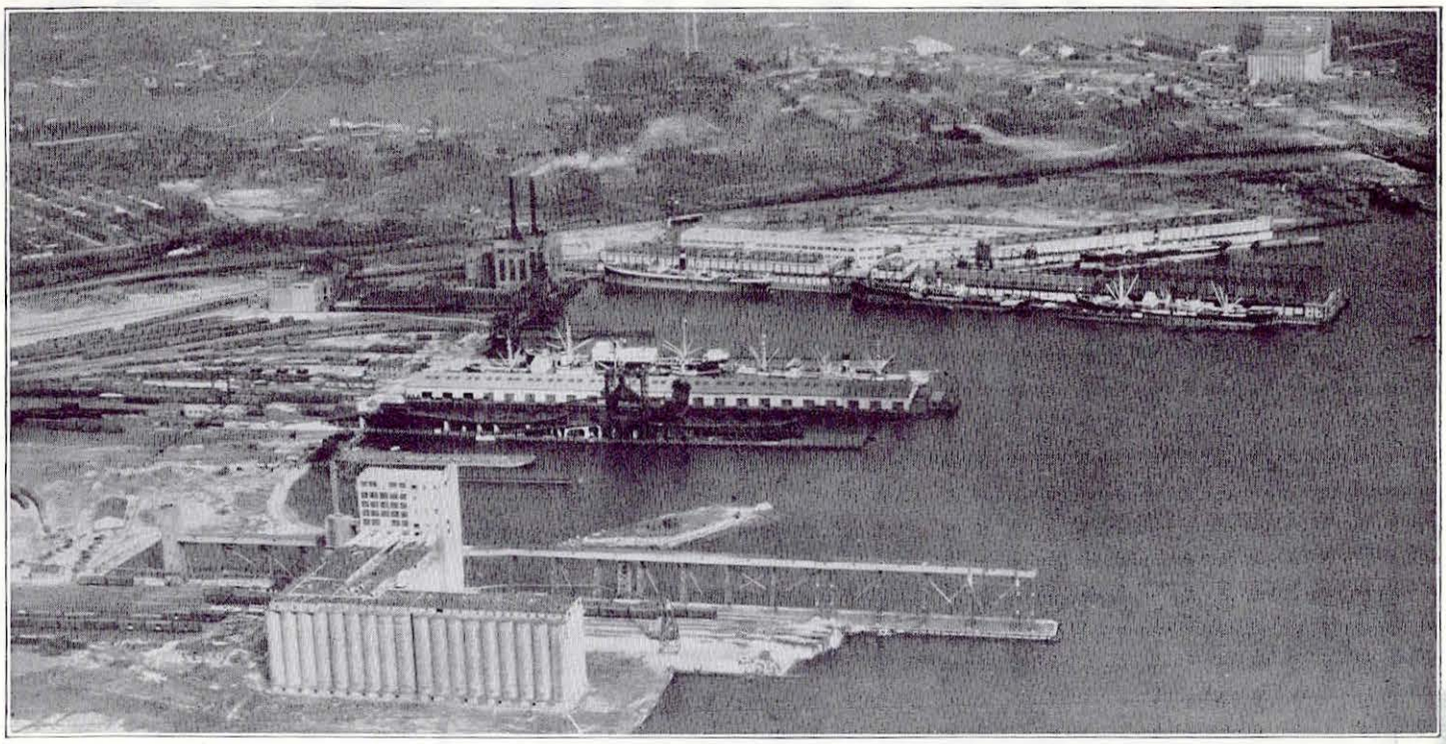
THE KOPPERS CONSTRUCTION COMPANY
PITTSBURGH, PA.





These illustrations show a few of the plants of Koppers and Affiliates

Western Maryland Railway Company



Western Maryland's Port Covington Terminal at Baltimore. Modern and complete. Berthing space for twenty-three ocean vessels. Approximate cost $20,000,000.

WESTERN MARYLAND RAILWAY fulfills its part in the country's transportation requirements. It contributes to the general welfare. Representing an investment of $170,000,000, in 1933, despite greatly reduced revenues, it expended in taxes $736,000, in payrolls $4,700,000 and in supplies $2,100,000, composed of steel, ties, lumber, fuel coal, oil and other commodities. But for the decline in gross revenue from $19,000,000 in 1929 to $12,300,000 in 1933, the Western Maryland would have exceeded its actual expenditures in 1933 by more than $5,000,000. This is indicative of the vast railroad industry as a whole.

The railroads are absolutely essential to the nation. Their welfare contributes vitally to the public welfare. Railroad revenues have been seriously curtailed by unfair competition from different sources. Huge motor trucks, constantly increasing in numbers, free of governmental regulation, use the publicly built, publicly maintained highways as transportation agencies, without adequate payment for such use. Inland waterway vessels are also enabled to compete unfairly with the railroads by reason of inadequate regulation and large subsidies from the Federal Government.

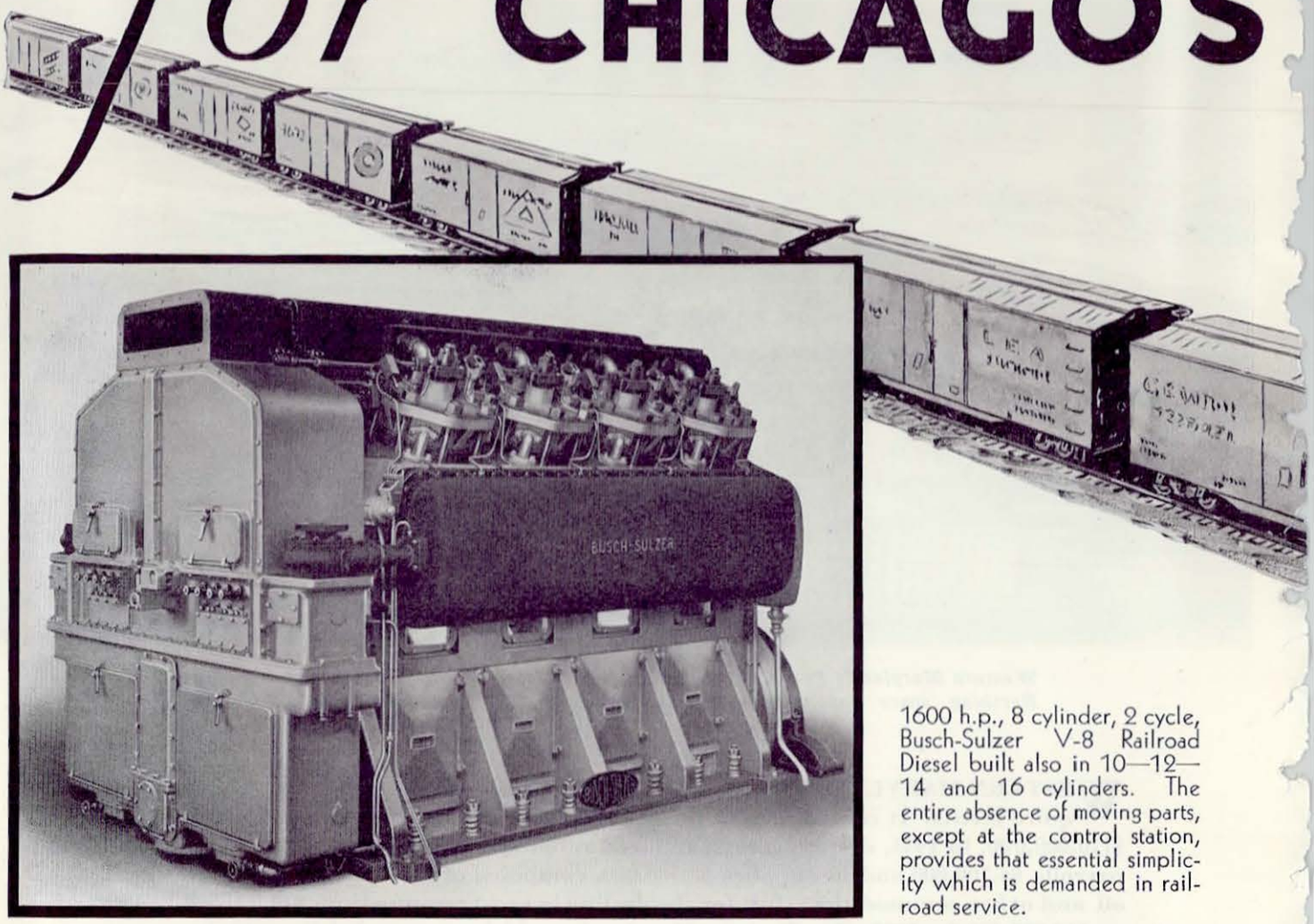
Governmental regulation of motor trucks, adequate taxation for commercial use of the highways, appropriate regulation of inland waterway carriers and discontinuance of governmental subsidies are in the public interest. The public funds will be conserved. The railroads will be enabled to regain much of their lost traffic revenues and substantially to increase employment of men and purchases of supplies.

WESTERN MARYLAND RAILWAY COMPANY

A Highly Efficient Carrier

GENERAL OFFICES - - - BALTIMORE

for CHICAGO'S



1600 h.p., 8 cylinder, 2 cycle, Busch-Sulzer V-8 Railroad Diesel built also in 10—12—14 and 16 cylinders. The entire absence of moving parts, except at the control station, provides that essential simplicity which is demanded in railroad service.

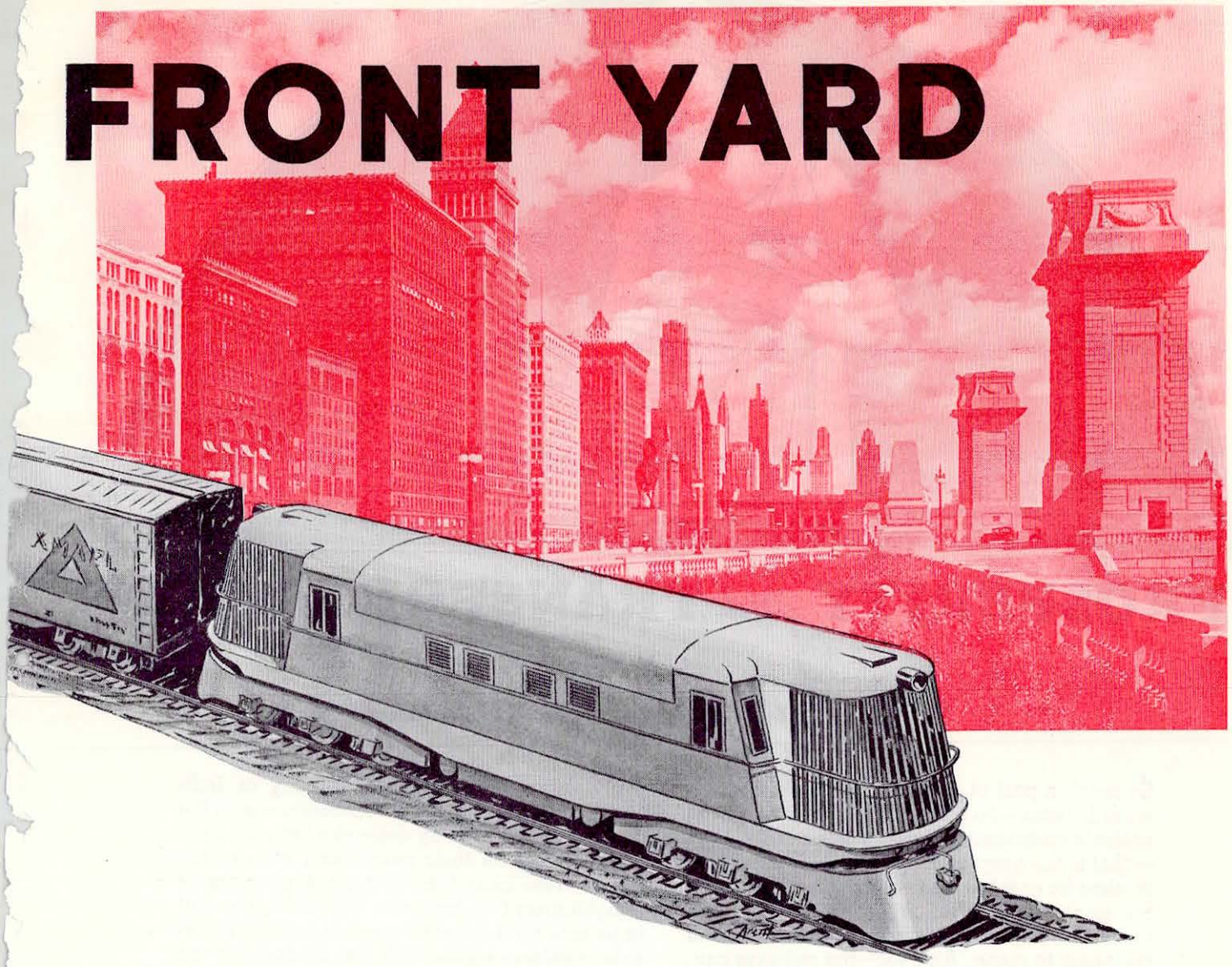
Largest 2000 Horsepower,

the largest single unit Diesel Electric Locomotive yet built, has been purchased by the Illinois Central Railroad. Bought for economy in operation and for smoke elimination in the Chicago Terminal area, the new locomotive will be powered with a Busch-Sulzer 2000 HP, 2 cycle, single acting, 10 cylinder, V type, 550 RPM locomotive Diesel. It will be geared for maximum speed of 60 miles per hour and will normally handle freight trains of 5000 tons at around 25 miles per hour in transfer service.

The Busch-Sulzer Bros.—Diesel Engine Company is the oldest Diesel Engine manufacturer in the U. S., having 36 years of experience, devoted solely to the building of Diesel Engines. Busch-Sulzer's Railroad Diesels range from 1600 to 3500 horsepower in single units, in from 8 to 16 cylinders, suitable for *heavy switching, main line passenger and freight Diesel electric locomotives.* The single unit feature

BUSCH-SULZER BROS. — DIESEL

FRONT YARD



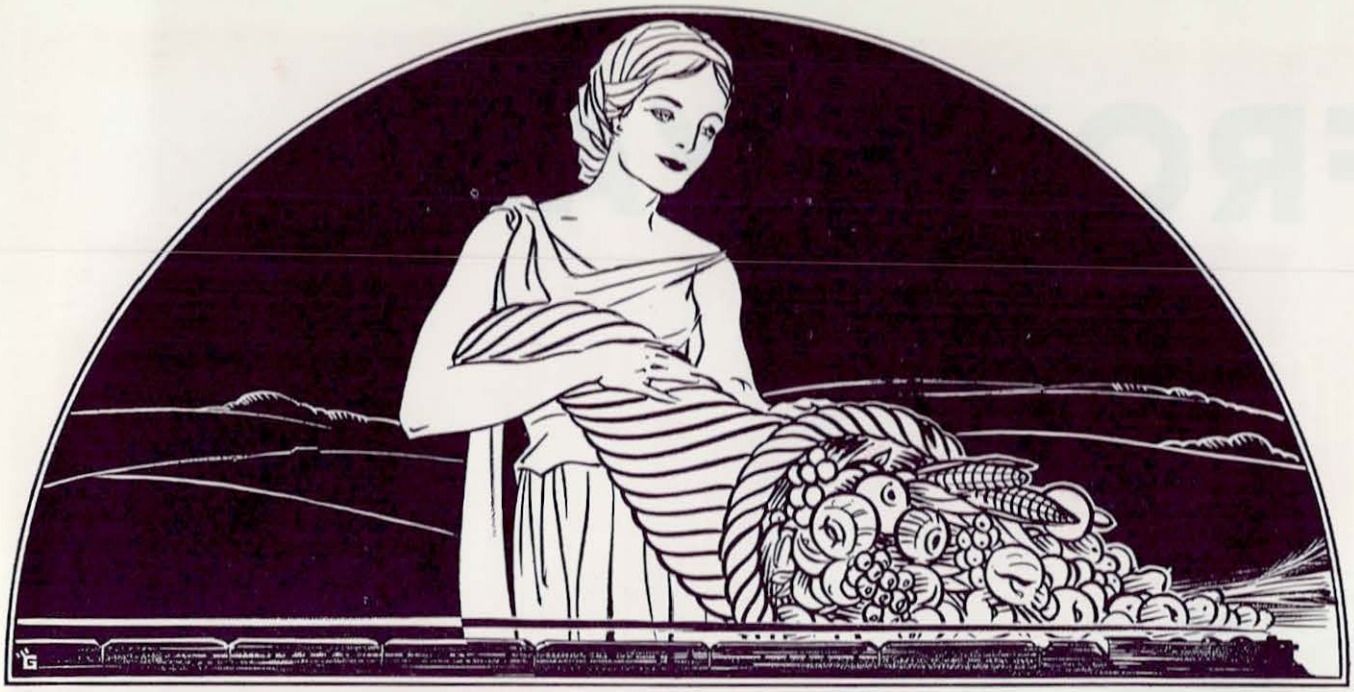
Single Unit Diesel Locomotive

provides for the utmost in simplicity of design and operation.

This order utilizes the results of scientific research and experiment carried out in the very teeth of the depression. With restored purchasing power the railroads will be in a position to purchase such modern equipment, designed to permit greater economy in operation, and greatly assist in bringing about recovery in the durable goods industry.

BUSCH-SULZER

ENGINE COMPANY, ST. LOUIS, MO.



PROSPERITY *and* TRANSPORTATION

. . . *go hand in hand*

So much a part of everyday life have the railways become—so efficiently do they carry the nation's commerce to every corner of the land—that to the average man they are a utility that is taken for granted—something that has existed for generations—that is present today—and that will continue to be present throughout all the years to come. And yet—the railways cannot be taken for granted—cannot be overlooked in the shaping of a national future that is to be stable and sound. With normal purchasing power running into countless millions—with many thousands of workers directly or indirectly connected with their operation—with the durable goods industry dependent to an appreciable extent on their purchasing power—too much stress cannot be laid on a program of enlightenment—a program that will point out in its true light the vital need of activity favorable to railway recovery. It is to the furtherance of such an ideal that this message is dedicated—the ideal that prosperity and transportation go hand in hand—that they are one and inseparable.

Playing an important part in the efficient and economical service rendered by the nation's leading railways, are the following quality products of the American Steel & Wire Company. A request will bring detailed information concerning them.

American QUALITY PRODUCTS Steel & Wire Company

TIGER BRAND WIRE ROPE
AMERICAN RAILROAD FENCE
COLD ROLLED STRIP STEEL
BANNER STEEL FENCE POSTS
TIGERWELD SIGNAL AND POWER BONDS
AMERICAN RAILROAD GATES
PERFECTED TELEPHONE, TELEGRAPH WIRE AND STRAND
ELECTRICAL WIRES AND CABLES
PREMIER WELDING WIRE
NATIONAL EXPANDING ANCHOR DIRT SET END AND CORNER POSTS
AMERICAN BARBED WIRE
SPRINGS
AMERICAN WIRE NAILS
USS STAINLESS AND HEAT RESISTING STEELS
CONCRETE REINFORCEMENT
USS HIGH TENSILE STEELS

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago
94 Grove Street, Worcester

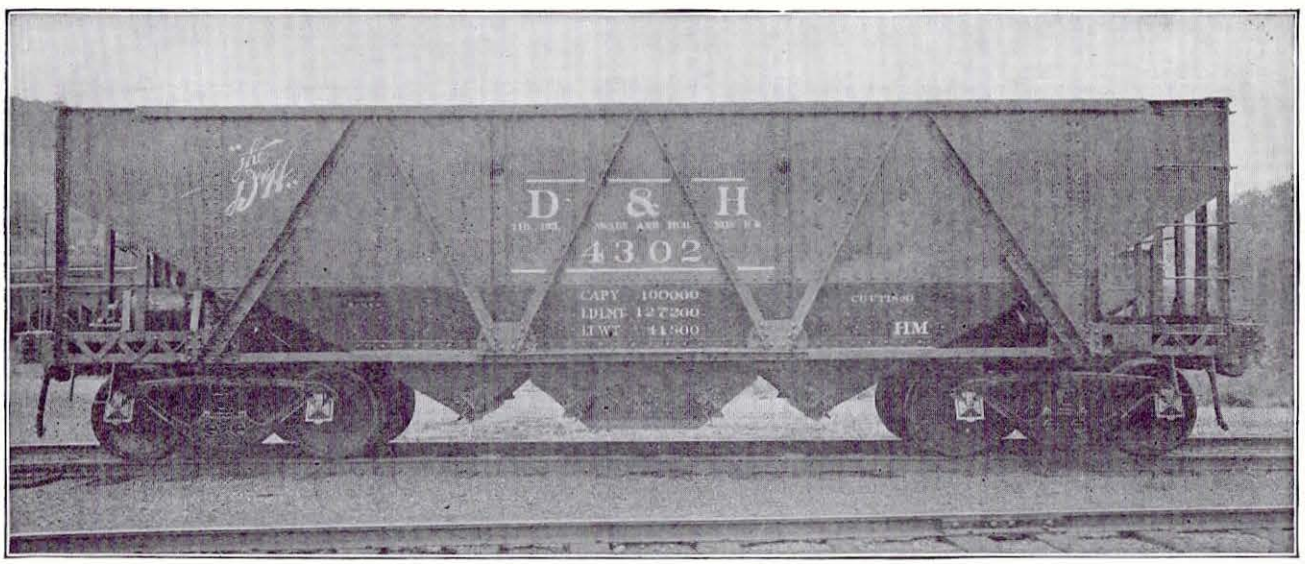
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
AND ALL PRINCIPAL CITIES

Empire State Building, New York
First National Bank Building, Baltimore

Pacific Coast Distributors: Columbia Steel Company, Russ Bldg., San Francisco

Export Distributors: United States Steel Products Company, New York

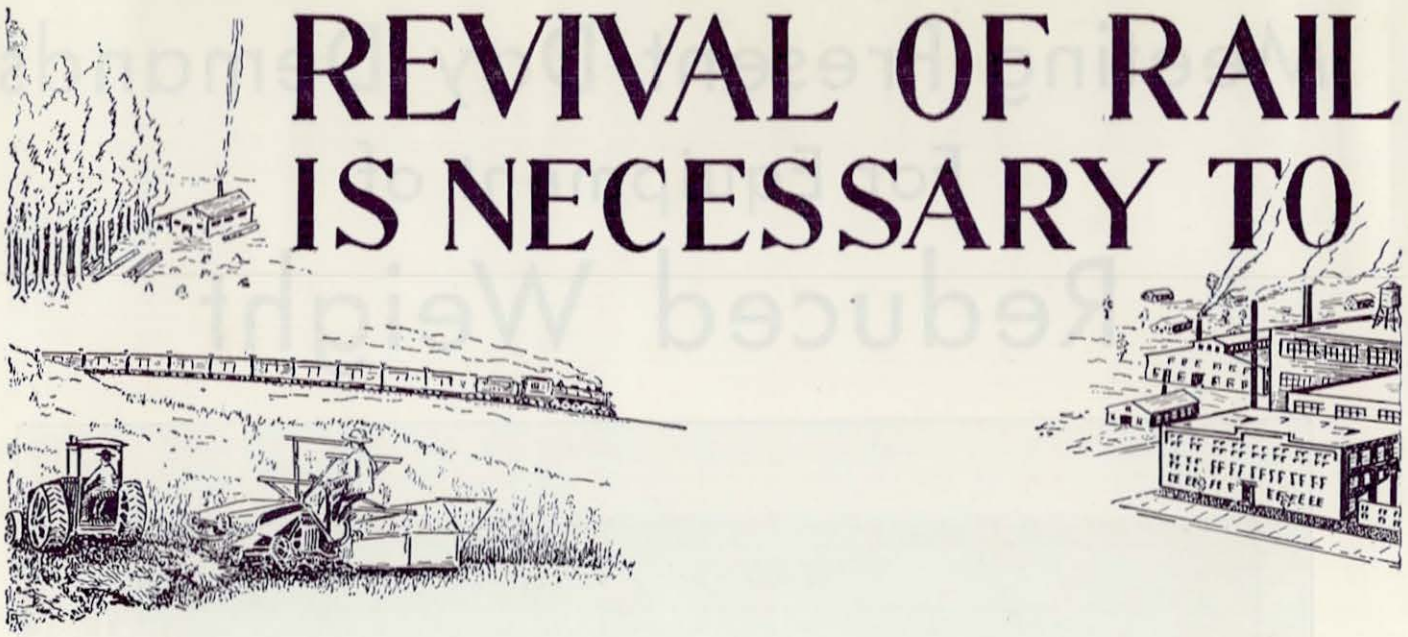
Meeting Present Day Demands For Equipment of Reduced Weight



THE use of NATIONAL type B trucks resulting in less dead weight hauled, permits of increased revenue load.

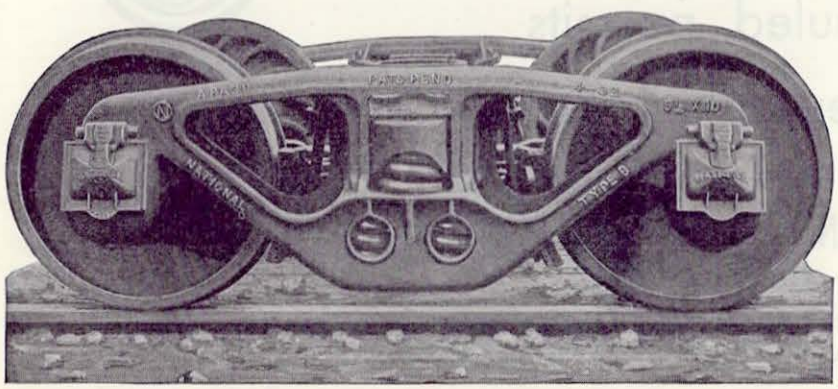
NATIONAL MALLEABLE AND STEEL CASTINGS CO.
General Office — Cleveland, O.
Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

NATIONAL TYPE B TRUCKS



REVIVAL OF RAIL IS NECESSARY TO

THE relationship of railway purchases to business recovery demands immediate action by our legislative bodies. With added expenses due to increased wages and cost of materials, few railroads will be able to meet fixed charges. The railways cannot buy the materials needed, unless adequate earnings are assured. The recovery of the durable goods industries can be advanced by additional P. W. A. loans for necessary railway purchases.



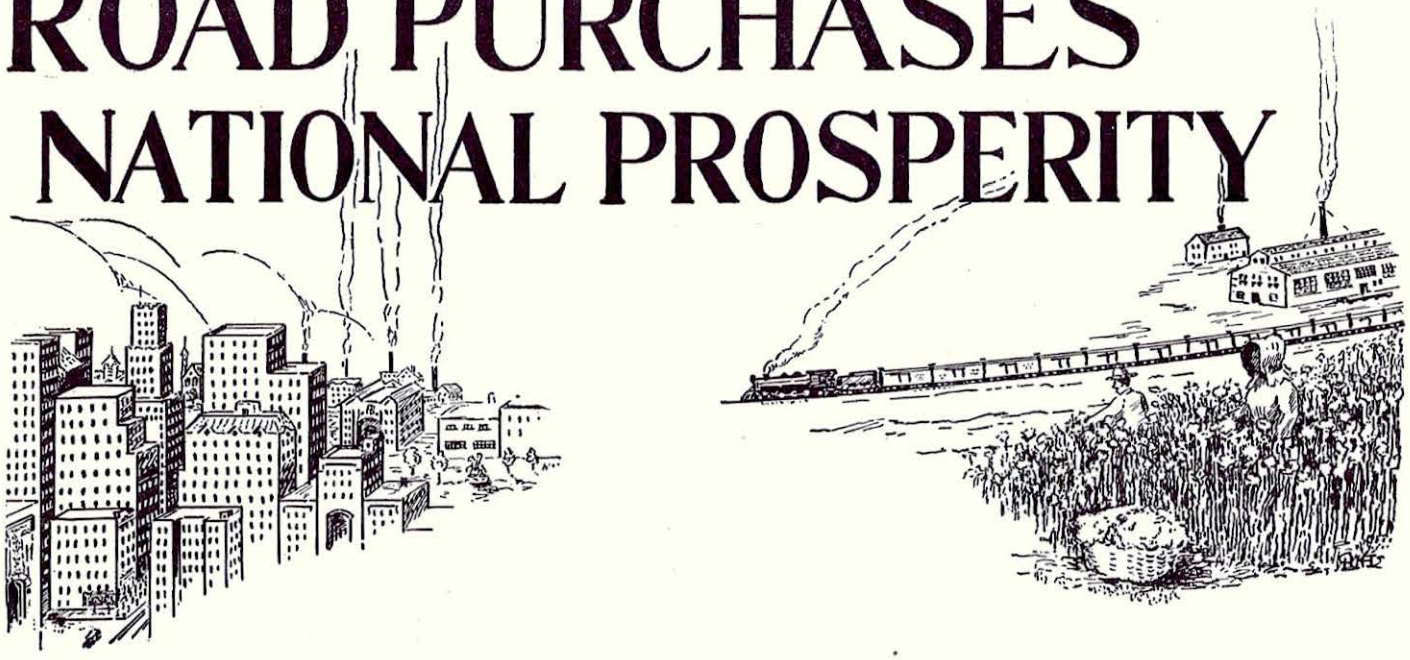
NATIONAL Type B Truck

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

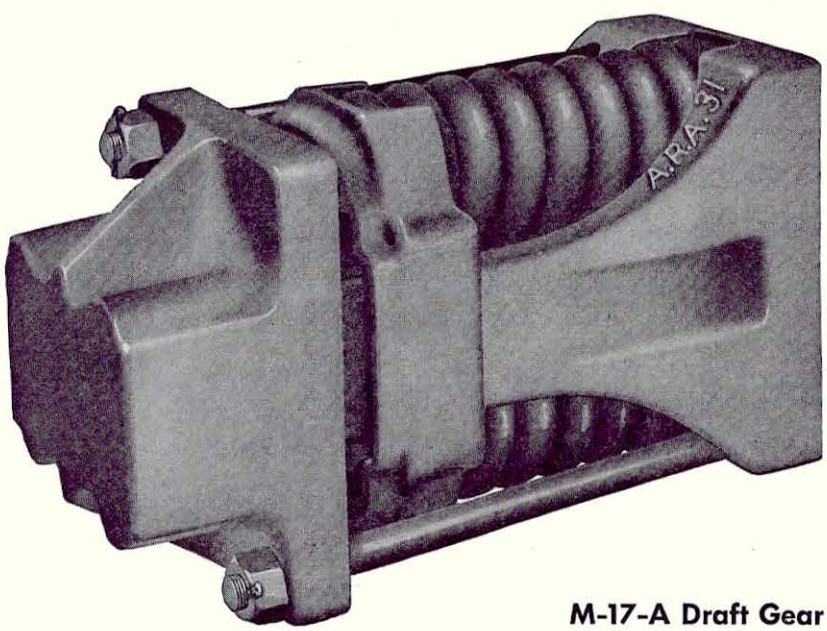
General Office — Cleveland, O.

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco

ROAD PURCHASES NATIONAL PROSPERITY



THE recovery of the durable goods industries can be stimulated through increased railway earnings and purchases. The railways are one of the largest purchasers of durable goods, and the resumption of such purchases will directly effect, through increased employment, many communities such as those in which our plants are located — Sharon, Pa., Cleveland, O., Chicago and Melrose Park, Ill., and Indianapolis, Ind.



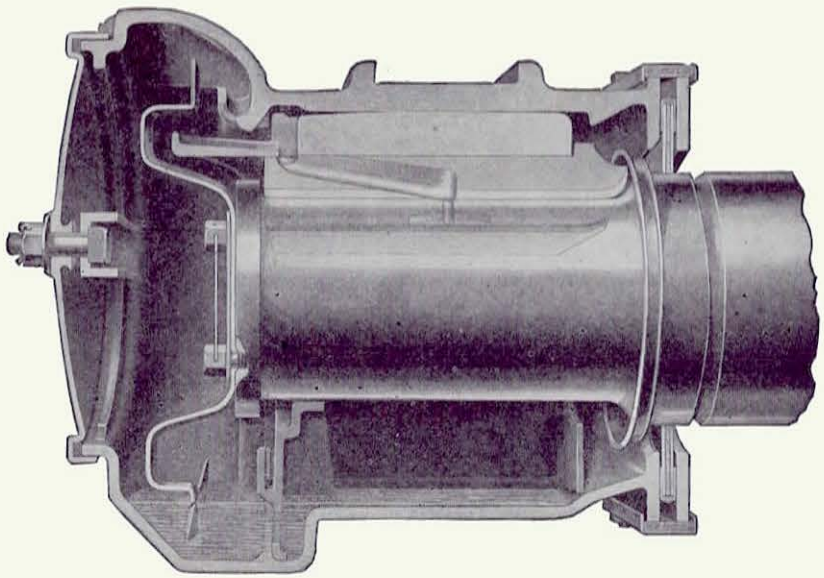
M-17-A Draft Gear

NATIONAL MALLEABLE AND STEEL CASTINGS CO.
General Office — Cleveland, O.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Meeting Present Day Demands

For Dependable

Journal Lubrication

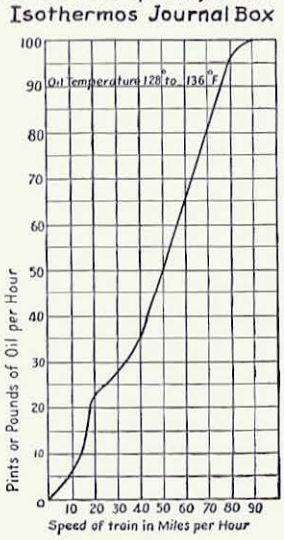


THE Isothermos Journal Box applicable to standard A. R. A. journals is the result of intensive research and service both here and abroad.

Over 300,000 of these boxes are now in use under varying conditions.

Efficient lubrication at an extremely low maintenance cost.

Delivery of Oil to bearing at various speeds, in the Isothermos Journal Box



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NATIONAL
ISOTHERMOS JOURNAL BOX

RAILROADS WILL NOT NEED HELP

At such time as the Federal and State Governments and the public at large cease their subsidy of

APPROXIMATELY TWO BILLION DOLLARS ANNUALLY TO THE USERS OF OUR HIGHWAYS

Cost and Maintenance of our Highways (includes State, Rural, and Town)

APPROXIMATELY THREE BILLION DOLLARS ANNUALLY

Gasoline and vehicle taxes paid by users

APPROXIMATELY ONE BILLION DOLLARS ANNUALLY

There would be about as much sense in giving the Railroads a subsidy of

TWO BILLION DOLLARS ANNUALLY

as there is in giving it, as we are now doing, to the users of our Highways.

Increase gasoline and vehicle taxes to an extent (or have a Toll Tax) so that users of our Highways pay for the cost and maintenance.

Then both Railroad and Highway transportation would be on a par, each paying its own way.

If Railroads were given a subsidy of

TWO BILLION DOLLARS ANNUALLY

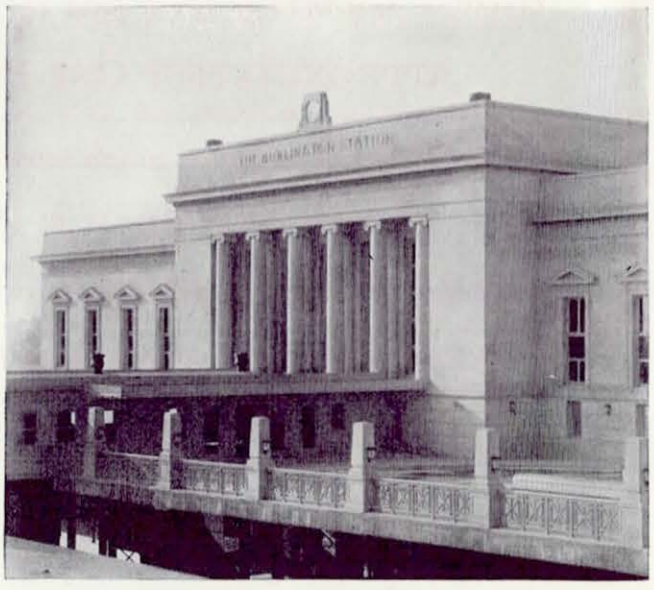
and the users of our Highways had to pay for the cost and maintenance of our Highways, then, Highway transportation could no more compete with the Railroads than the Railroads are able, at present, to compete with Highway transportation.

As great an improvement as is the Highway automotive vehicle, it is no more entitled to a subsidy than the telephone, telegraph, printing, electric light, and thousands of other improvements which had to pay their own way without a subsidy.

No business, whether Industry or Railroad, is able to compete with one that is receiving a subsidy yearly, and those that have a subsidy will always ruin those that do not have the benefit of a subsidy.

Hutchins Car Roofing Co.

THE Burlington



The Burlington's New Passenger Terminal in Omaha
Beautiful as well as Practical, the Building of Such Stations Means Better Service to the Public, Creates Employment in Many Localities

WITH other lines of business showing quite satisfactory increases, the durable goods industry still lags in the national recovery program. It will continue to lag so long as railway purchases remain at a low level, a condition forced upon the railways not merely by depressed business conditions, but by regulatory measures of all sorts and by unregulated competition.

Burlington purchases, for example, dropped from $39,405,129 in 1929, to $10,818,282 in 1932. Instead of bringing about the employment of thousands of men in the durable goods industry by the purchase, as in 1929, of nearly forty million dollars worth of its products, Burlington expenditures for supplies were reduced by $28,586,847, or nearly 75 per cent. With the somewhat increased earnings of 1933, Burlington purchases followed suit, their value being nearly a million dollars greater in that year than in 1932. Substantial additional sums were expended on the repair and modernization of equipment and right of way, and, perhaps most significant of all, the Burlington in 1933 ordered the Zephyr, the first of a fleet of light-weight, streamlined, high-speed passenger trains, built of stainless steel and Diesel powered.

Even in these years of uncertainty, it will be seen that the Burlington, at the first sign of increased earnings, turns the major portion of this income back into the recovery of industry in the form of orders for all the manifold needs of a railroad.

THE BURLINGTON WANTS TO BUY!

This fact has been further demonstrated this year. With an increase of $2,500,000 in gross earnings in the first seven months of this year, the Burlington expended $1,700,000 additional in maintenance of way, and $600,000 additional in repairs to equipment. This does not include the purchase price of two additional trains of the Zephyr type which have since been ordered. The subsequent decline in earnings made necessary a comparable decline in purchases, but, certainly, experience shows conclusively that

THE BURLINGTON WANTS TO BUY!

The Burlington is better off than most railways because of its low capitalization and consistent program of improvements. Even in 1932—at the bottom of the depression—it had a net income of $1,500,000. It enjoys a diversified traffic, and serves well-developed manufacturing centers as well as an agricultural area of better than average productivity. It has an up-to-date plant. No expense has been spared to provide Burlington with track of the highest standards, equipment of the most efficient type, and other facilities adequate for the proper service of the road's patrons, while, at the same time, keeping the pumps of the durable goods industry going with a steady flow of orders.

The Burlington is greatly under-capitalized. With an investment of $607,000,000 in railway operating

wants to buy

property, and a total investment of $655,000,000, its funded debt is only $220,000,000. Thus, because of its traditional policy of spending a large share of its earnings in the improvement of its operating properties, the Burlington now has to meet annual fixed charges of only $9,000,000. Only because of these low fixed charges has the Burlington been able to earn, throughout the depression, some net income each year.

Why Buying Has Been Restricted

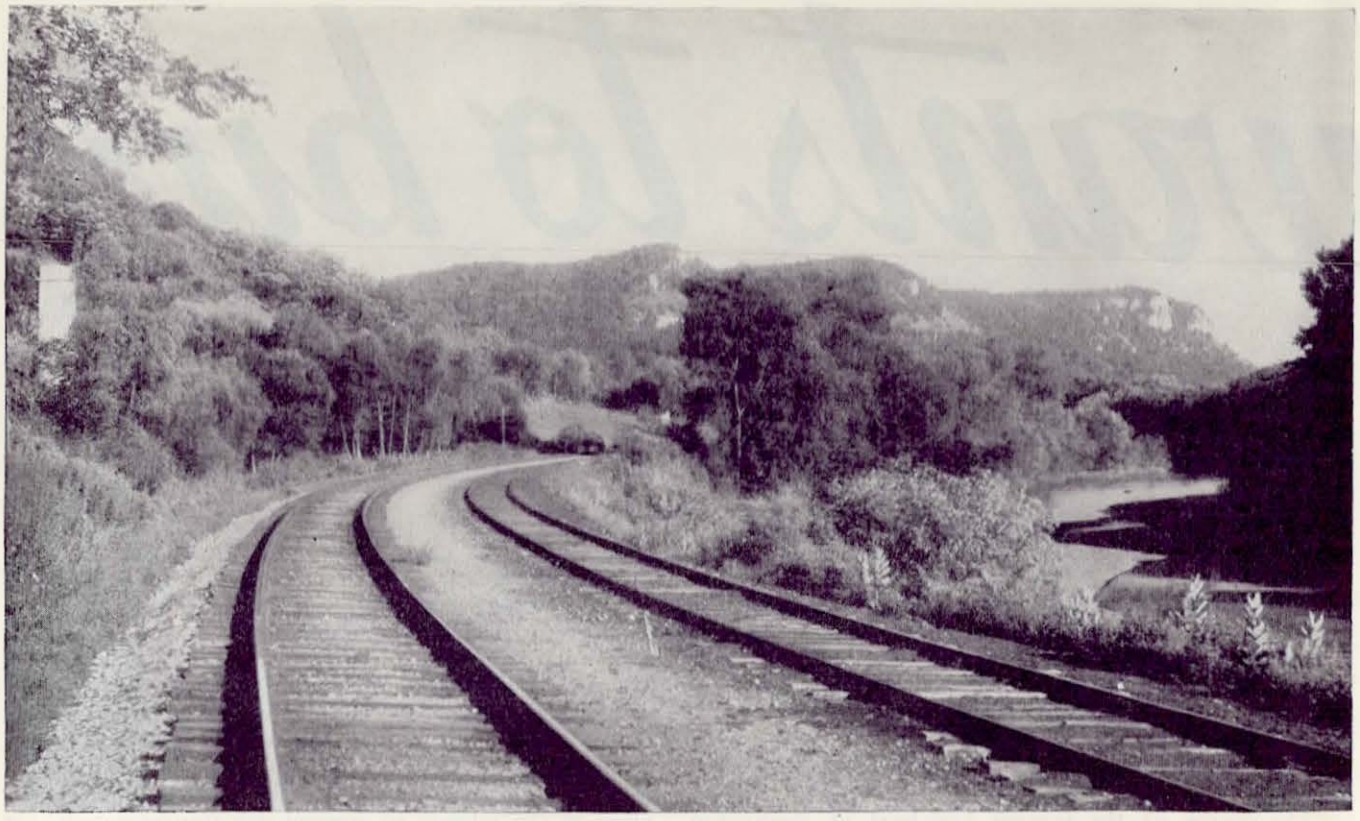
The causes of the present low level of Burlington earnings are various. First, there is the general business depression. But also of great importance is the competition of carriers by highway, waterway and pipe line. These competitors, relatively free from regulatory supervision, and, in the case of the first two, especially waterways, assisted to an extreme degree by governmental provision and maintenance of the right-of-way upon which they operate, have cut deeply into the Burlington's revenues.

The Burlington never has taken the position that the elimination of highway competition is a simple, or even a desirable objective. Regulation, federal or otherwise, can correct the major inequalities; to drive the trucks off the highways is entirely another question.

It is not the Burlington's idea to destroy any industry at any time and particularly not at this crucial point in the nation's economic history. Trucks have their proper place in the scheme of present-day transportation, but that place, when basic economic principles are considered, probably is a more restricted one. When it is determined definitely what the radius of proper and profitable truck haul is, a great forward step will have been taken toward a solution to the problem.

Inland waterways are something quite different. They

The Zephyr—Built of Stainless Steel, Streamlined, Diesel-Powered, Holder of the Non-Stop World Record for Passenger Trains
Its Construction, Immediately Following the First Upturn in Railway Earnings, and the Later Placing of Orders for Two Similar Trains, Prove that the Burlington Wants to Buy



Double Track along the Upper Mississippi River between Chicago, St. Paul and Minneapolis, Now being Made Ready for the New High-Speed Trains

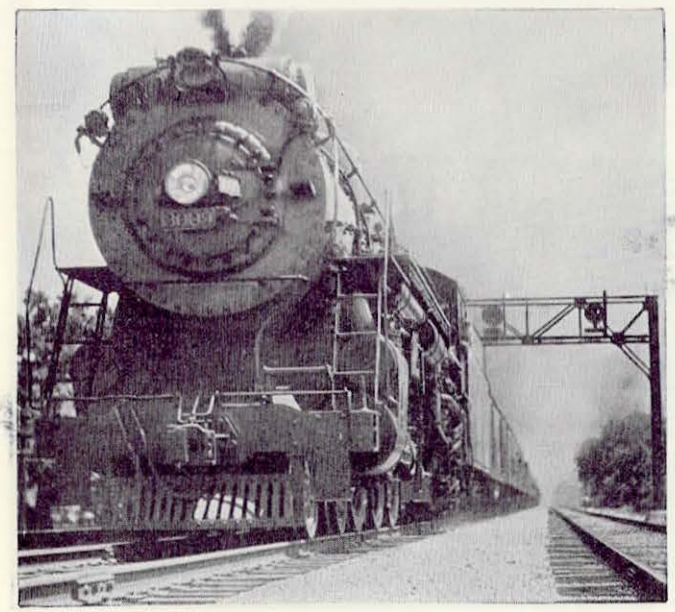
have not developed a single pound of new freight. Their operation has not created a single new industry. The fantastic costs to the government to insure their operation have resulted in heavy penalties to all industries in the form of taxation, with the additional penalty to the railroads of loss of traffic, and loss of revenue on traffic diverted to the barge lines. The futility of this experiment has been demonstrated over and over again, yet expenditures for waterway improvements continue unabated.

In connection with intercoastal waterway traffic, too, the railways' hands are tied. They are prohibited from doing all that they might do to meet this serious competition by regulatory restrictions to which they are subject under the "long and short haul clause."

Depending heavily as it does, in view of the agricultural area it serves, upon the movement of farm products, the Burlington has suffered heavily from the present restrictive policy on agriculture. The farmers are recompensed for the products which they do not raise or which they destroy. The railways, on the other hand, are not only not recompensed for this serious loss of traffic, but are, at the same time, subjected to new and costly restrictions by national legislation.

WHAT THE BURLINGTON WOULD BUY

It would take only a small increase in business to cause the Burlington to buy more equipment at once, notably freight cars. At the moment, the railroad owns some thousands of box cars with arch-bar trucks that are scheduled for replacement as the cars reach the point of retirement, if the earnings justify such a step. Likewise, the first car shortage in years recently occurred on the Burlington, when, because of the movement of stock



The ARISTOCRAT
Chicago—Omaha—Lincoln—Denver
Leader of the Burlington Fleet

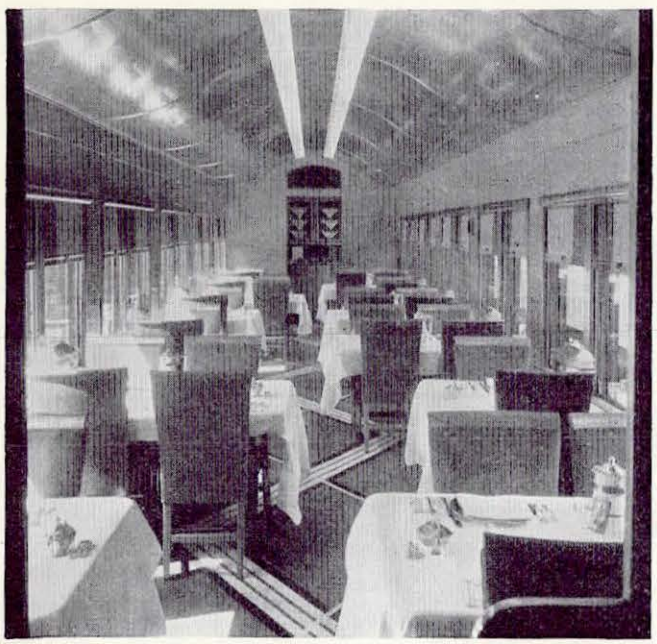
Burlington Route

Chicago, & Quincy

from the drought-stricken areas to distant parts of the country, the current supply of stock cars became inadequate. The situation was temporary, but it serves to illustrate the fact that the railway must be ready for any emergency, when other forms of transportation fail. The charge that the railways are overbuilt is manifestly silly when one considers the constantly recurring emergencies of this sort that crop up.

In 1929, the Burlington bought $3,079,210 worth of rail; in 1932, this figure shrank to $563,518. It is apparent what a valuable addition to employment in the steel industry of the country this $2,515,692 of decreased rail orders would have been. Likewise, wheels accounted for $1,442,620 of the Burlington's expenditure in 1929, but only $455,514 was spent for this commodity in 1932, or nearly a million dollars less for this nation-wide industry.

A decrease of more than a million dollars in the sum



The BLACKHAWK'S New Dining Car
The Diners of All the Burlington's Principal Trains Have been Remodeled, Redecorated and Refurnished within the Past Five Months

expended for new equipment is significant also, in view of the widespread purchases of contributory materials that are necessary when new cars or new locomotives are being built. In 1929, the Burlington ordered 22 steam locomotives, 1,621 freight cars and 20 passenger cars, a very considerable contribution to many phases of the durable goods industry, and, in 1932, such orders shrank to one gas-electric locomotive, no freight cars and four passenger cars. Again, the effect of a decrease of $3,988,356 in the amount of coal purchased is not limited to the mining industry alone. If they had received it, the mines would have passed large portions of it along to other industries in the form of purchases of machinery and other commodities. They would have hired more men, and the sums paid out in wages to these men would have been distributed in the form of purchases.

The Burlington does not operate through a lumber-producing territory, and comparatively few of its cross-ties are obtainable along its lines, so its purchases of lumber and ties made themselves felt from the pine flats of Mississippi to the fir-clad mountains of Washington. In 1929, the Burlington bought $2,264,759 worth of lumber and $1,512,792 of ties, $3,777,551 in all for the lumber industry. In 1932, $201,362 worth of lumber and $295.282 of ties were bought. a total of $496,644, representing a decrease of $3,280,907 in business for the lumber industry.

What might be considered a small item—stationery and printing—showed a decrease of $421,215 in 1932, as compared with 1929.

For transporting these purchases over other lines, the Burlington paid $1,459,667 in 1929 for freight charges and only $535,150 in 1932. Thus, even other railways were deprived of nearly a million dollars' revenue by the falling off in Burlington purchases.

A railroad buys and uses practically any commodity one could name. In 1929, the Burlington purchased $18,237,772 worth of miscellaneous items, too numerous to mention in detail. In 1932, these miscellaneous purchases dropped to $3,559,028—*a decrease of $14,678,774,* or 80.5%!

By largely increasing these purchases, commensurate with increased income in 1933 and during the first seven months of this year, and by its past history it has amply been proved that

THE BURLINGTON WANTS TO BUY!

But, so long as the conditions previously enumerated as curtailing earnings exist; so long as legislative and administrative authorities permit them to remain, and, in fact, continue to impose additional burdens, the Burlington will continue to earn but little and be thus prevented from playing, by means of its orders placed with the durable goods industry, the part which it normally would play in national recovery.

The AK-SAR-BEN'S Lounge Car—Its Entire Length Dedicated to the Comfort of Burlington Passengers

Burlington Railroad

Let's send them

★ ★

ARMCO

on their way ★ TOGETHER

Industrial welfare, industrial earnings, industrial employment represented in the great durable goods industry, are firmly linked with railroad transportation.

One is largely dependent upon the other. Together we can journey far toward better times. Moving separately on different paths, each is handicapped, each is stalemated. The railroads cannot purchase necessary durable goods unless purchasing power is assured. And purchasing power for the railroads must come from steady earnings.

TWO IMPORTANT BILLS

Sound judgment seems to suggest immediate passage of the Pettingill Bill in the next session of Congress. Enacted into law, this bill should go a long way toward adjusting present inequalities.

Another measure of relief is the Rayburn Bill, which would put the transportation facilities of our country upon an equitable plane.

GOING AHEAD STRONG

The railroads of America have continued to make progress in spite of obstacles. We see many improvements, among them light, strong, durable cars coupled with fleet, modern locomotives that shorten time and conserve power. Other advancements in roadbed, signalling and mechanical shop equipment are not so widely known; yet these have contributed much to safe and low-cost transportation.

STIMULATE RECOVERY

The railroads can do a real job for national recovery if given the chance. Their great properties and their even greater manpower are vital to industrial growth and stability. All industry looks to them for help—for production, earnings, employment, and purchasing power. The men of the railroads are conscious of these things and are eager to do their part.

EVERYONE CAN HELP

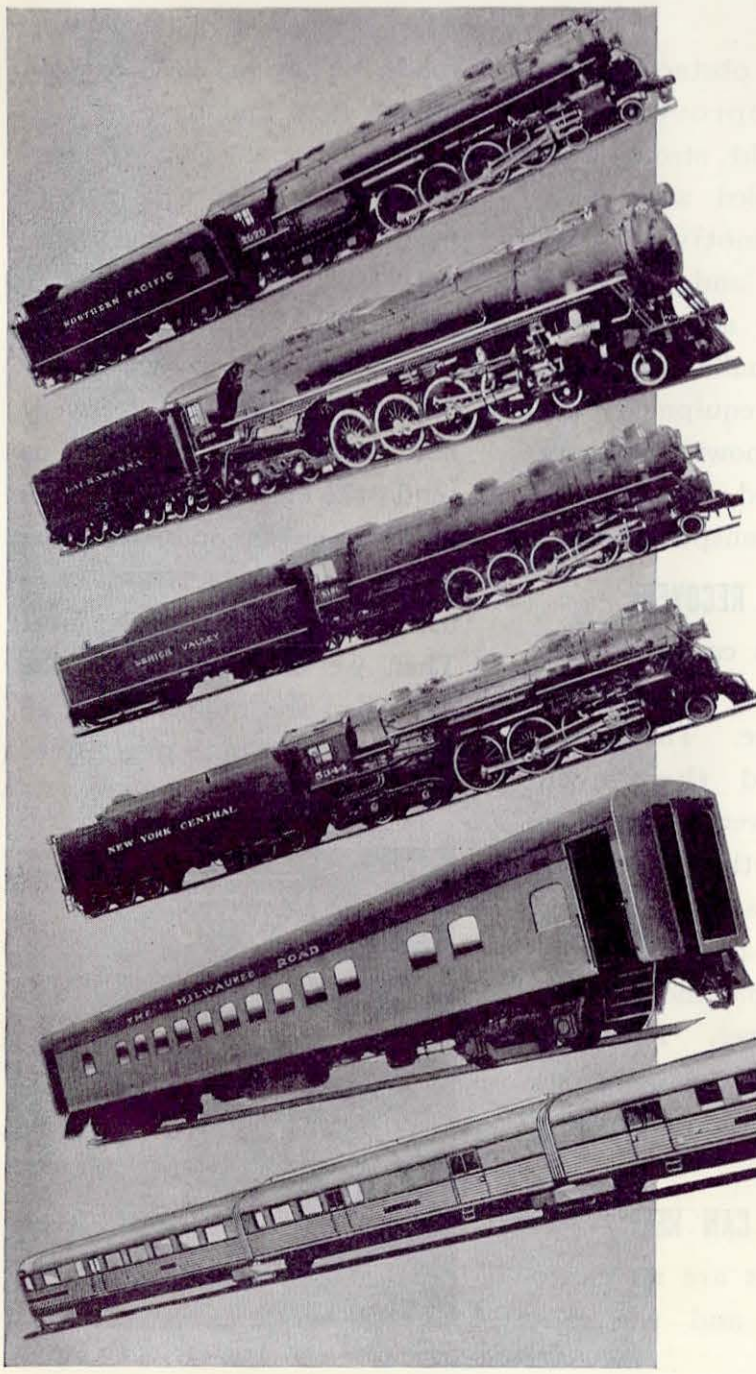
Two brothers are no closer than industry and the railroads. They are flesh of each other's flesh and bone of each other's bone. Our government can help in this hour of need. Our people can help. After all, the government is the people.

Let us provide every fair opportunity for full recovery and future progress. Let us send the railroads and the durable goods industries on their way TOGETHER. Let us, in short, live and let live. Then we shall again see the day when the railroads and all industry contribute mightily to a great common prosperity.

ARMCO
WHEELS • SHEETS
PLATES
for thrifty railroads

ARMCO RAILROAD SALES CO.
Subsidiary of The American Rolling Mill Company
Executive Offices: Middletown, Ohio

Timken Bearings Predominate In 1934 Railroad Developments

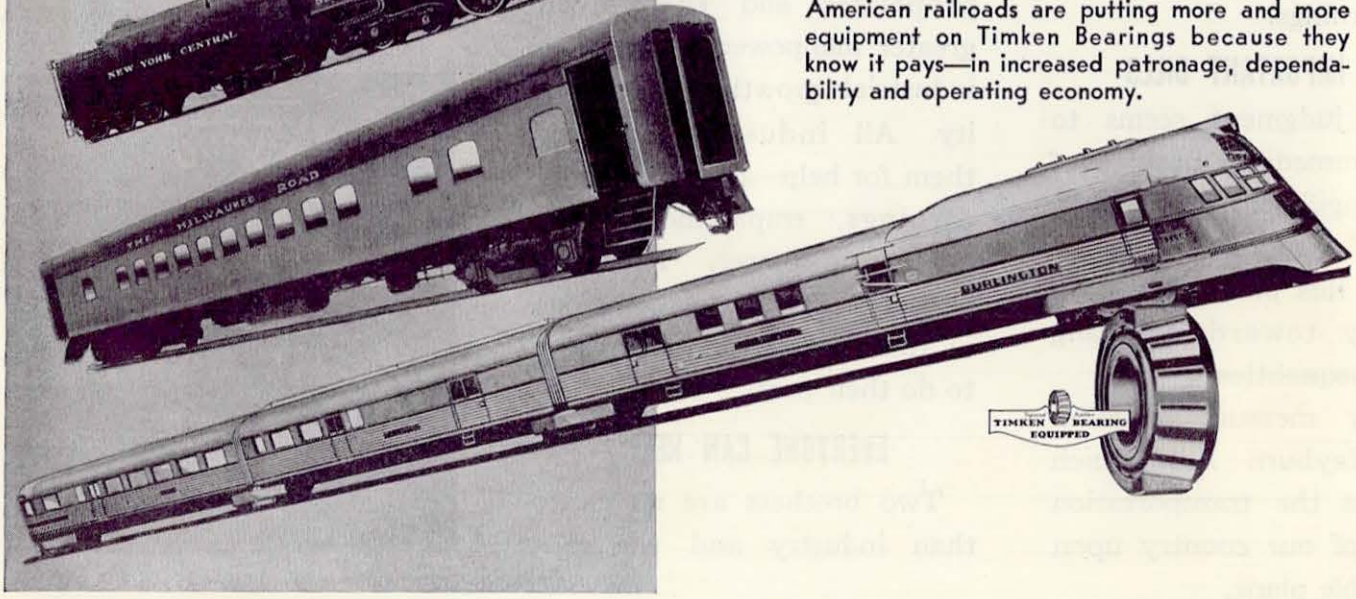


THIS year will go on record as one of the most progressive years in American railroad history. New conceptions of speed and comfort . . . new locomotives . . . new types of cars and trains, have brought orders for Timken Bearings exceeding in volume and importance those of any similar period for several years past.

Outstanding orders for Timken Bearings for 1934 delivery prove that the railroads are fully appreciative of Timkens' efficiency and dependability. These orders include bearings and boxes for all axles of 10 new locomotives for the Northern Pacific R. R.; 18 new class 4-8-4 locomotives for the Lackawanna; 2 new locomotives for the Lehigh Valley; 29 tenders for the New York Central; all journals for a new 5-car articulated subway-elevated train for the Brooklyn-Manhattan subway; all journals of three Burlington "Zephyr" trains (1 train in service, 2 on order); 50 new de luxe coaches and 25 baggage trucks for the Milwaukee Road; all journals of the "Rail Zeppelin" train for the New Haven Railroad; all journals of a new high speed eight-car steam train for the B. & O.; all journals of 28 new P-5-A Electric Locomotives for the Pennsylvania; and all engine trucks on 10 new Boston and Maine engines.

One hundred and sixty-two railroads now operate Timken Bearing Equipped rolling stock.

American railroads are putting more and more equipment on Timken Bearings because they know it pays—in increased patronage, dependability and operating economy.



THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

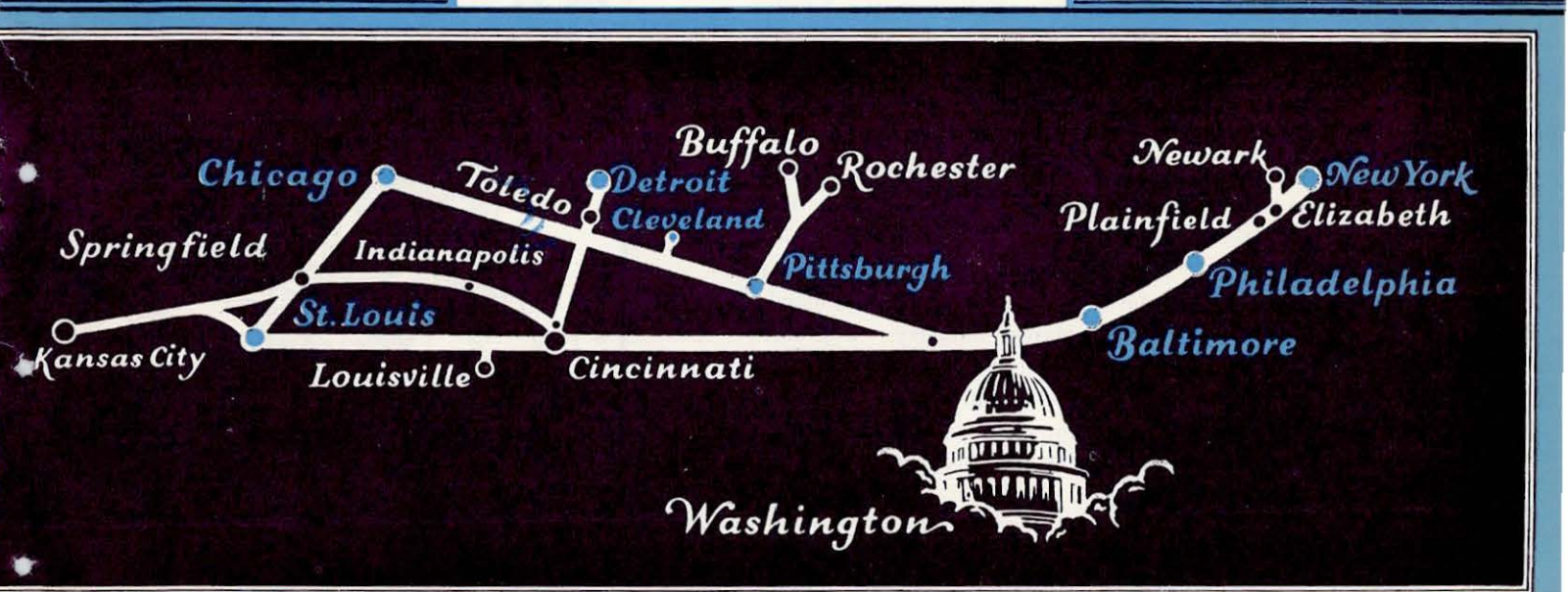
TIMKEN *Tapered Roller* **BEARINGS**

PROSPERITY

ON THE

BALTIMORE AND OHIO R.R.

MEANS ADDED PROSPERITY IN THIRTEEN STATES AND EIGHT OF THE TEN LARGEST CITIES IN THE UNION



....RESTORATION OF THE $100,000,000 LOSS IN OPERATING REVENUE WILL FAVORABLY AFFECT THE DESTINIES OF THOUSANDS OF PERSONS AND HUNDREDS OF INDUSTRIES

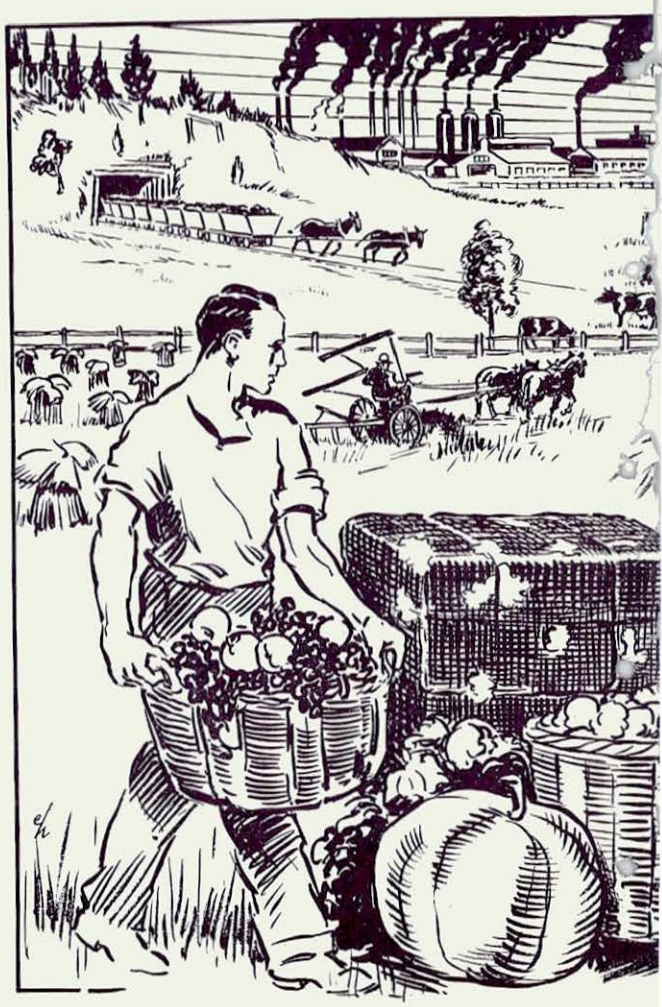
THE BALTIMORE & OHIO, America's oldest railroad, has been serving the public for over one hundred years. It has played a leading role in the industrial growth of the nation and the recovery from every major economic depression. Its service to the country and the people in times of war and disaster is an unusual record of meritorious achievements. Its policy of being a "good neighbor" to the public and communities that it has the privilege to serve has created a reputation which is the company's most valued possession.

Having grown up with the nation, the BALTIMORE & OHIO Railroad is an integral part of its industrial life. Its well-being naturally affects the destinies of a great mass of people and many of the most important industries in the country. Today the BALTIMORE & OHIO has over 7,000 miles of modern railroad extending from the Atlantic Seaboard on the East to the Mississippi Valley on the West and from the Great Lakes on the North to the Ohio River Valley on the South. It serves thirteen states and the District of Columbia and traverses the most densely populated and the most highly industrialized section of the country.

Not only the BALTIMORE & OHIO but every railroad today is confronted with many difficulties. The BALTIMORE & OHIO fully realizes the necessity for certain State and Federal regulations for the proper control of rates and the setting up of certain standards of operation for the transportation industry. The contention of the railroads is not that all of these regulations should be abolished, but that other forms of competing agencies should be amenable to similar regulations. If they are good for the railroads why are they not good for the buses, trucks, waterway transportation, pipe lines and air lines, which, under the present set-up, are free to operate very much as they please? And some of these unrestricted transportation agencies are receiving subsidies from the government.

The railroads are asking no quarter from any source. What they want and should have is a square deal, not only as a protection to the railroad itself, but to the thousands of investors in railroad securities.

In normal times over 200,000 people—employes and their families—are dependent upon the BALTIMORE & OHIO for their livelihood. An examination of the operating results of the last few years shows very clearly why thousands of people and hundreds of industries have suffered on account of the conditions which have forced the BALTIMORE & OHIO



to make drastic reductions in its army of employes and appropriation for expenditures. During the last three years, for instance, the average annual operating revenue of the BALTIMORE & OHIO has decreased nearly $100,000,000 per year—that much less to spend for labor, fuel, materials, interest, dividends and credit support for capital improvements. Just one example of how the loss in railway earnings has affected the nation.

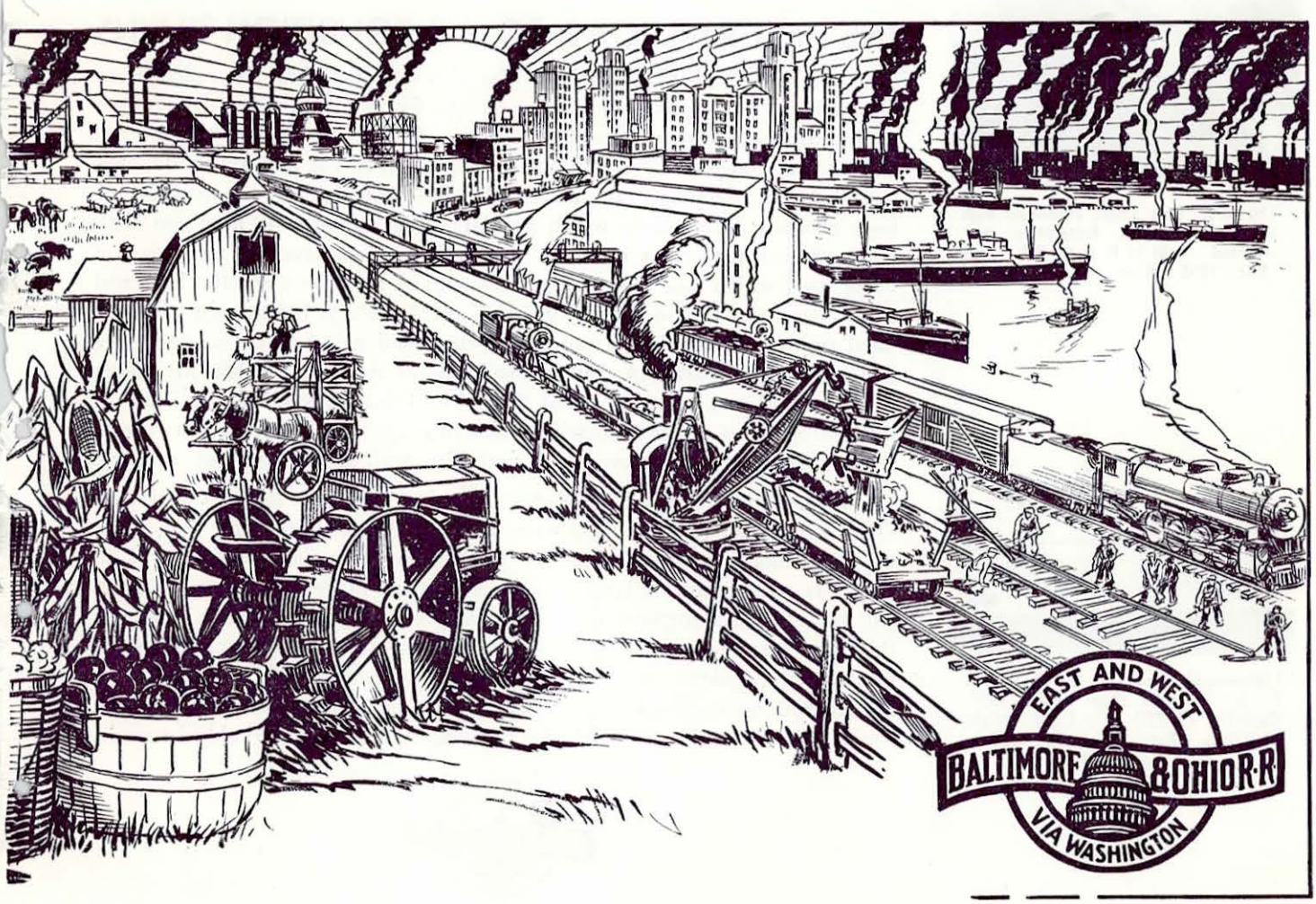
This condition is due in part to the unrestricted and unregulated competition of competing forces which should be brought within the bounds of reasonable governmental regulation.

The BALTIMORE & OHIO Railroad keenly feels the great responsibility to its employes and the communities which it serves. It will never relax in any degree its pledged co-operation with the municipal, state and federal government, and the people whom they represent, but it does feel that the time has arrived when the public in its own interest *must* seek a clearer understanding of the problems which are affecting the railroad industry, and, in turn, the entire nation, so adversely.

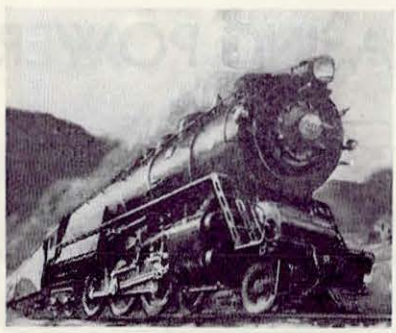
There is nothing complex or doubtful about the difficulties the railways face. All that is needed to remove them is the application of the traditional American principle of fair play for all and special privilege for none.

Every unbiased citizen who will inform himself will realize the unfairness of the present conditions and every legislator who has the ultimate interest of his community and constituents at heart will support the just and simple measures which would establish justice and fair dealing in the transportation industry, restore railway earnings and revive the purchasing power that is the key to national recovery.

NEW EQUIPMENT AND MAJOR IMPROVEMENTS AWAIT RESTORATION OF PURCHASING POWER



B. & O. Dining Car "Martha Washington" the world's first Air-conditioned car. Placed in regular service in 1930.



The 5047, first single expansion high pressure passenger locomotive constructed. Built in B. & O. R.R. shops Dec., 1933. Boiler pressure 350 lb.

Lightweight hopper car built in B. & O. R.R. shops May, 1934. Capacity 137,800 lb. Light weight 31,200 lb. Ratio of revenue load to light weight 4.4 to 1.

PROGRESS

AMERICA'S OLDEST RAILROAD A PIONEER IN MANY NEW DEVELOPMENTS . . .

NO railroad has worked any harder in the interest of efficiency, comfort and safety than the BALTIMORE & OHIO. From the days of Peter Cooper's "Tom Thumb" to the present era is a long story replete with scientific research, constant improvement and many new developments. It was the pioneer in laboratory work and testing. Its engineers have presented many valuable contributions to the railroad industry.

This spirit of constructive progress has been maintained in full vigor despite all obstacles throughout the present economic depression. The BALTIMORE & OHIO was not only the first American railroad established for the general transportation of passengers and freight. It was the *first* to use the steam locomotive, the *first* to adopt electricity as a motive power—the *first* to place in service the improved individual seat type of day coach—the *first* to install rubber cushion underframes on cars for the greater comfort of passengers.

THE FIRST RAILROAD TO AIR-CONDITION TRAINS

The BALTIMORE & OHIO was also the *first* of all the railroads to air-condition passenger equipment. Nearly five years ago the first car so equipped was placed in service. This was followed one year later by the world's first complete air-conditioned train, and then the first air-conditioned long-distance sleeping car trains. It has constructed a number of high pressure locomotives which are attracting nation-wide attention with their efficient performance. New materials and construction methods are being used which will give a more economical ratio between the load and empty weight of freight cars. Two new, revolutionary, light weight, streamlined trains are now in the process of construction. And so on down the line—in every department—out on the road—in the shops and in the offices will be found ample evidence that the BALTIMORE & OHIO Railroad is in the front lines of the industrial march to progress—a spirit which reflects its confidence in the future of the nation as well as the railroad industry.

In harmony with all other railroads, however, the BALTIMORE & OHIO is forced to take cognizance of the fact that borrowing money for improvements is strictly limited by the amount of money it is allowed to earn. It cannot assume large additional burdens of debt unless earnings to pay interest and amortization are reasonably certain. Constructive action on the part of state and federal legislative bodies—to establish simple justice, not special privilege, in the transportation industry—will, in a measure, restore railway earnings so that larger expenditures for maintenance, new equipment and structures would be justified, and would inevitably be made.

EAST AND WEST
BALTIMORE & OHIO R.R.
VIA WASHINGTON

TRUE TEMPER PRODUCTS

ESTABLISHED OVER 100 YEARS
14 PLANTS IN UNITED STATES

ASHTABULA, O.
CONNEAUT, O.
GENEVA, O.
N. GIRARD, PA.
DUNKIRK, N. Y.
FORT MADISON, IA.
MONTROSE, IA.
WALLINGFORD, VT.
ST. JOHNSBURY, VT.
CHARLESTON, W. VA.
PLYMOUTH, N. C.
COLUMBUS, IND.
MEMPHIS, TENN.
FT. WAYNE, IND.

This IS AN ACKNOWLEDGMENT OF THE EFFORT BY RAILWAY AGE TO STIMULATE BUSINESS ACTIVITY FOR THE RAILWAYS AND THE DURABLE GOODS INDUSTRY

TRACK SHOVELS
LOCOMOTIVE SCOOPS
BALLAST AND TAMPING FORKS
STEAD RAIL ANCHORS
TAPERED RAIL JOINT SHIMS
AXES · ADZES AND HAMMERS
ASH · HICKORY HANDLES
WEED CUTTERS BUSH HOOKS
SCYTHES

150,000 TONS RAILWAY FREIGHT ANNUALLY

THE AMERICAN FORK & HOE COMPANY
CLEVELAND, OHIO, U.S.A.

SKF

On The RAILways HIGHways SEAways SKYways

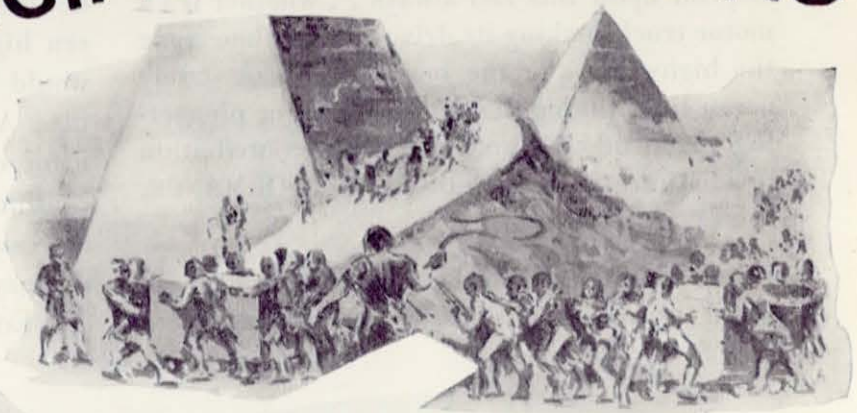
America LEADS in Transportation

Depend upon this fact always . . whether it's a motor truck making its drive against time along the highways . . or the lonely tramp or stately ocean liner plying the Seven Seas . . or pioneering plane making an outstanding contribution to aviation . . if it was built for PERFORMANCE, it is SKF-equipped.

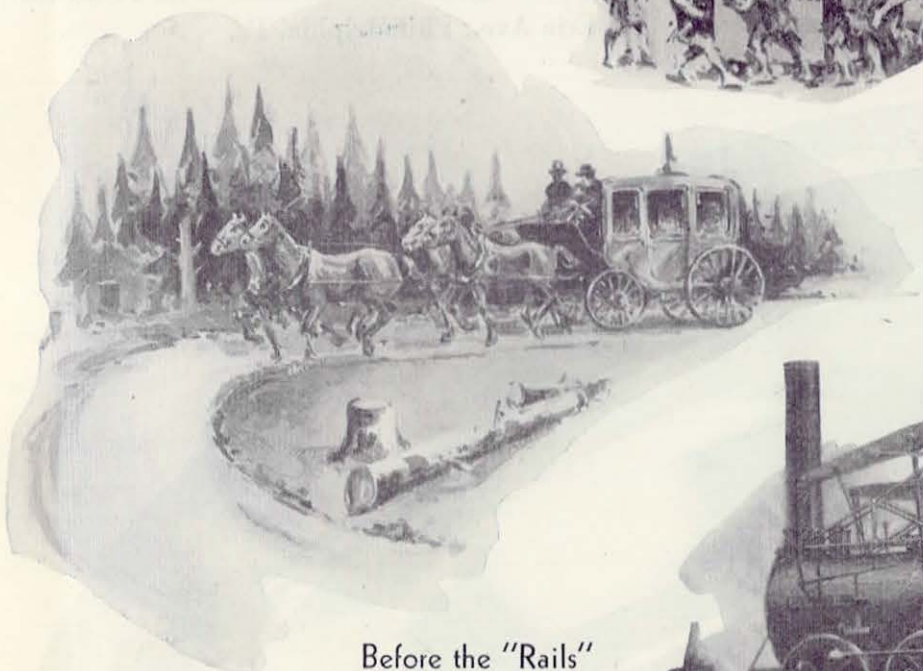
It was natural that, in the development of high-speed transportation, anti-friction bearings were destined to play an important part. The modern high-speed train, automobile and airplane would be impossible without anti-friction bearings. Anti-friction bearings maintain the alignment of rapidly revolving parts. They insure continuous, smooth, and quiet operation. They are essential to comfort, speed, and long life of equipment. SKF INDUSTRIES, INC., Front St. and Erie Ave., Philadelphia, Pa.

"The D&H"

CONSIDER THE EVER CHANGING CONDITIONS

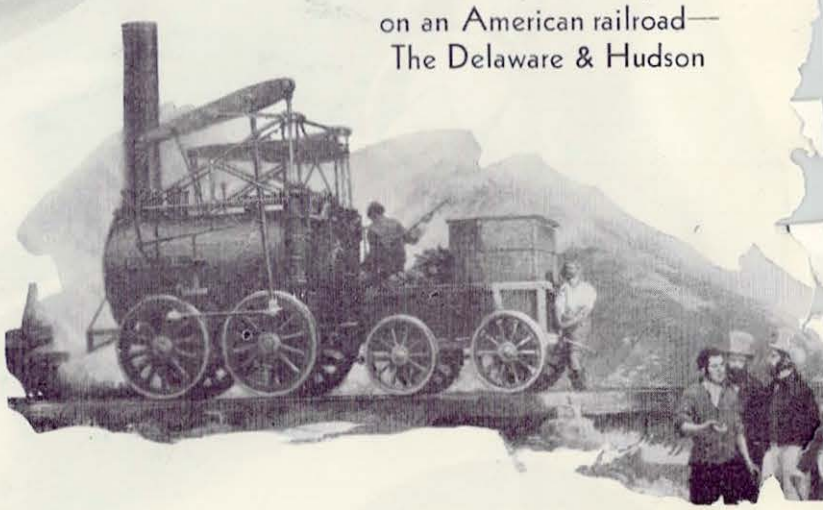


Before the Wheel



The "STOURBRIDGE LION"

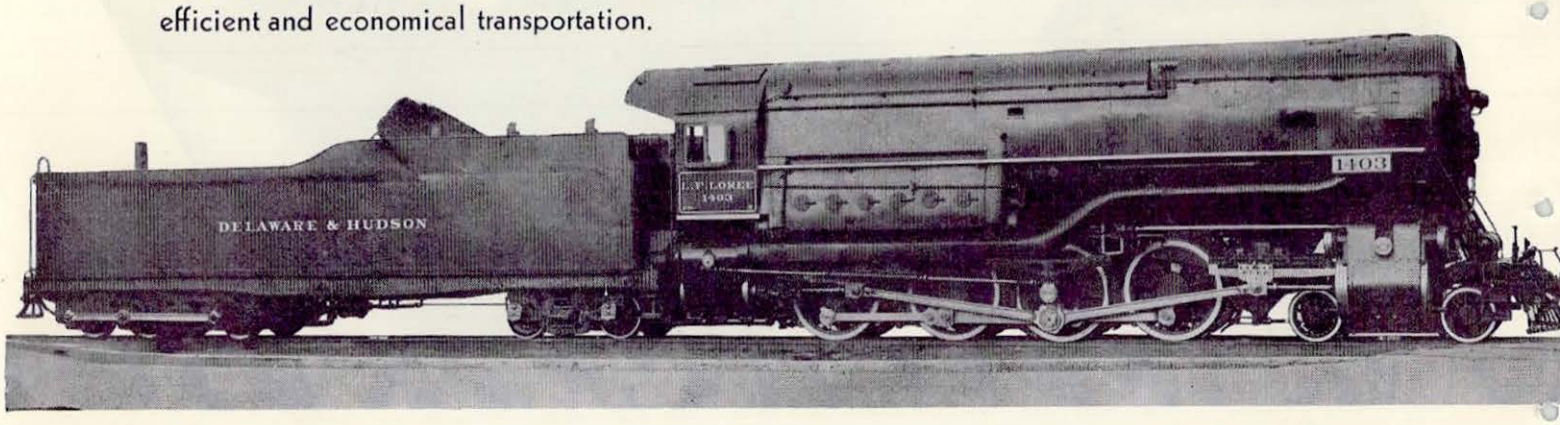
First locomotive to operate on an American railroad—The Delaware & Hudson



Before the "Rails"

The "L. F. LOREE"

First four-cylinder, triple-expansion locomotive—the latest contribution to efficient and economical transportation.



THE DELAWARE AND HUDSON RAILROAD
CORPORATION

OFFICE OF THE PRESIDENT

32 NASSAU STREET, NEW YORK November 1, 1934.

Progress and civilization is definitely marked by the development of transportation. From the early days when man packed his own burden, followed by his domestication of the pack animal, the bringing into use of the cart, the wagon, the stage coach, the sail boat the steamship, the railways, the automotive vehicle, and lastly, the airplane, the right of the public to the best and most efficient means of transportation has been recognized.

The railroads were an essential factor in the rapid growth and development of this country. They will continue to be, but to make them effective instruments in the recovery program, we must look to -

1. The relief of management from restrictive regulation, the repeal of the unwieldy mass of Federal and State legislation and uniformity of regulation for all modes of transportation.
2. The adjustment of the items Taxes, Wages and Working Conditions.
3. Elimination of waste through the abandonment of all unused service, obsolete facilities and railway mileage no longer justified.
4. The development of the essential railroad facilities to the highest state of efficiency through the improvement of grades, reduction of curves, shortening of lines, application of ballast and heavier rail, strengthening of bridges and improvement of steam power.
5. Amelioration of the five major hazards of the workman; i.e., sickness, accident, death, unemployment and superannuation, or the incapacity of old age.

Pondering over the general economic situation, about which there is now so much confusion, the employer is confronted with these self-evident facts:

Governmental activity in private business has rapidly increased; private initiative, and the freedom of spirit that goes with it, virtually has been suspended; prices have been artificially advanced, curtailing purchases; redistribution of wealth through taxation appears to be a definite objective; the pay-as-you-go policy - the revenue doctrine of the Federal Government for nearly 150 years - has been cast into the limbo of forgotten things; the divided interest found in the organization of Labor, which seeks to evade responsibility before the law for the organization itself, which has no legal status, and for its membership, who are in no way accountable for its activities; "planned economy" is becoming more than a phrase. As a consequence of all this there is a wide feeling of uncertainty in the future.

We should recognize that since the declaration of our independence the structure of our government has never been more seriously threatened than at present. The first duty of the thoughtful citizen is to realize the gravity of the situation.

What steps can we take to recover and preserve the advantages with which we started and the phenomenal gains we have secured? The highest obligation of citizenship demands that we protect ourselves from those influences which are subtly at work undermining the Constitution and tinkering with the economic structure that has made us the most prosperous people in the world.

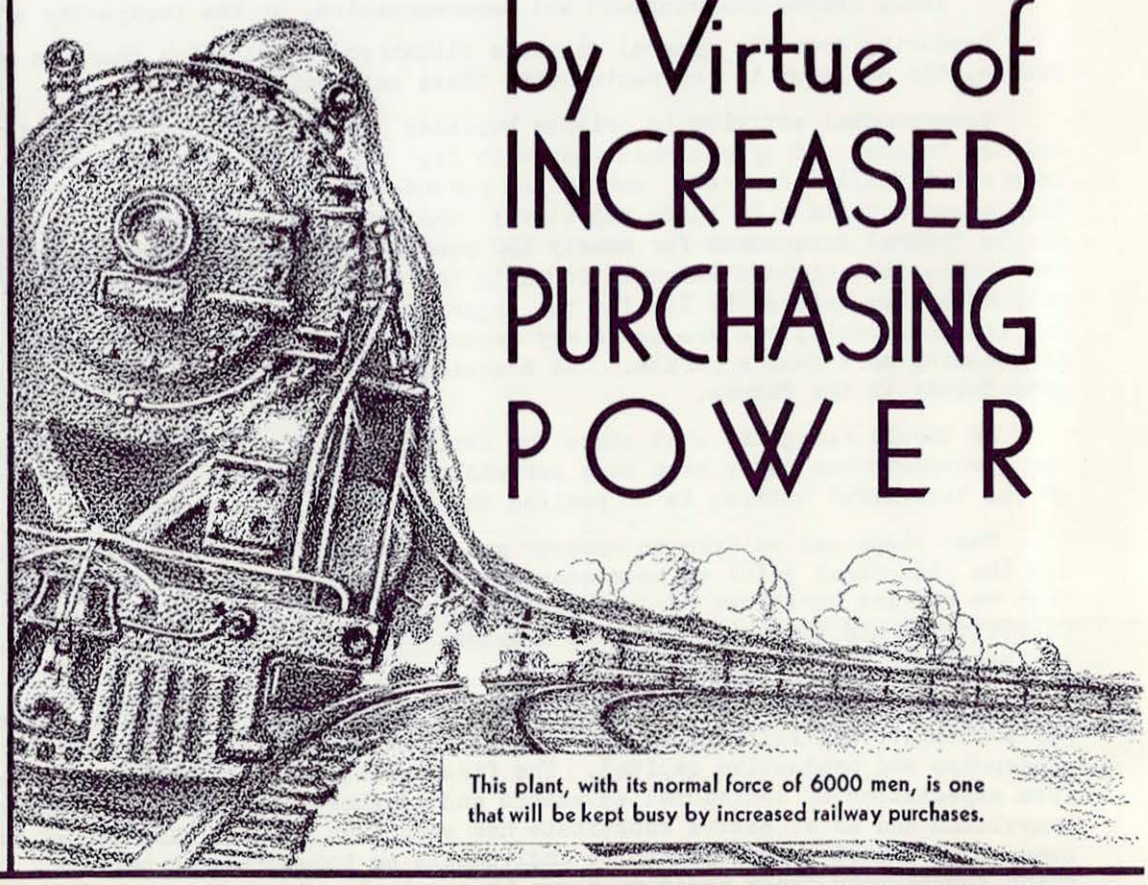
We must become active in behalf of sound government. We want no state where individual initiative and self-guided development would be merged or lost. There must be creative enterprise and productive capital. The first exists only in individuals, and springs only from expectation of individual advantage and advancement, which can never be created by compulsion and no effective substitute has ever been found. The law of nature knows or owes no permanent security save to individuals or industries or nations which demonstrate their creative power by survival and growth.

L. F. Loree

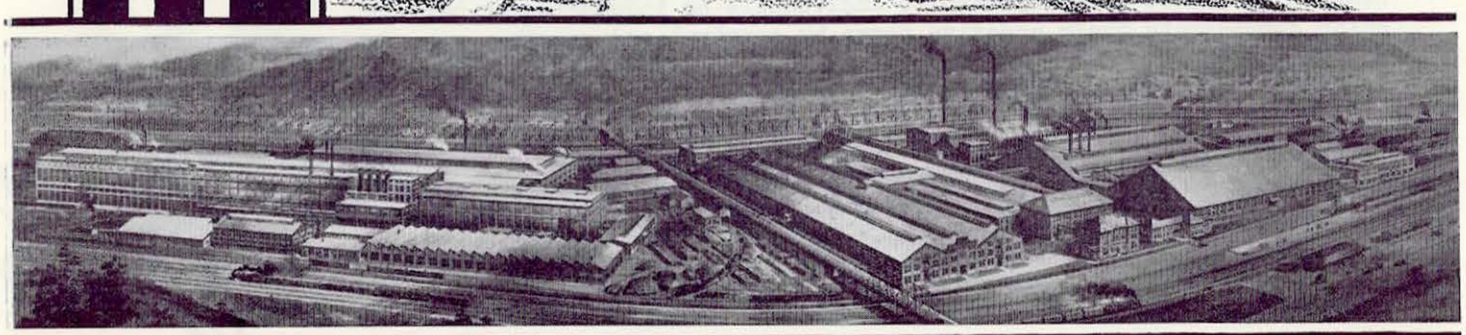
President

"The D&H"

Railroads are Enabled to Earn More, the Effects Will be Widespread and Cumulative by Virtue of INCREASED PURCHASING POWER



This plant, with its normal force of 6000 men, is one that will be kept busy by increased railway purchases.



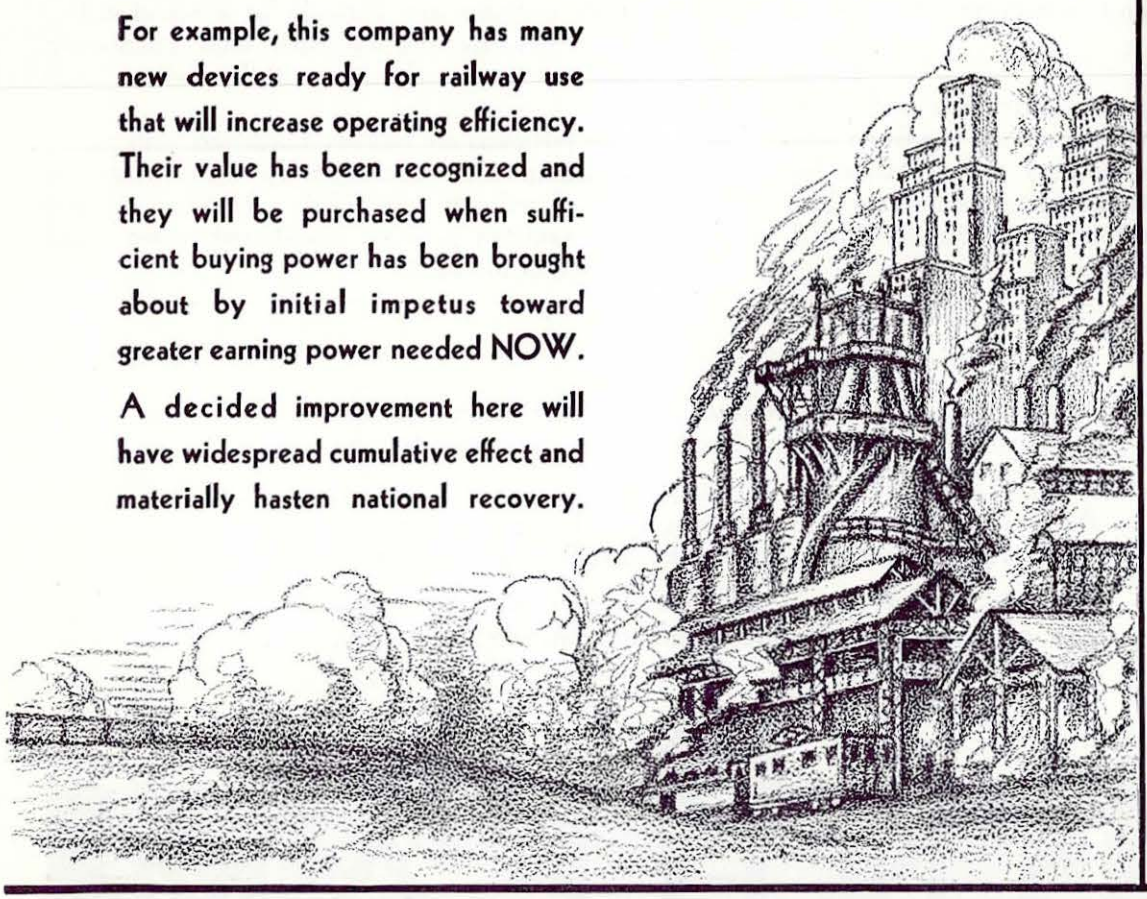
EARNING capacity of the railroads determines their ability to function properly, to perpetuate themselves, and to sustain dependent industries. They are far more than sellers of transportation; they are buyers of equipment and supplies. In this dual capacity they are vital to the economic welfare of our nation. » » » » » »

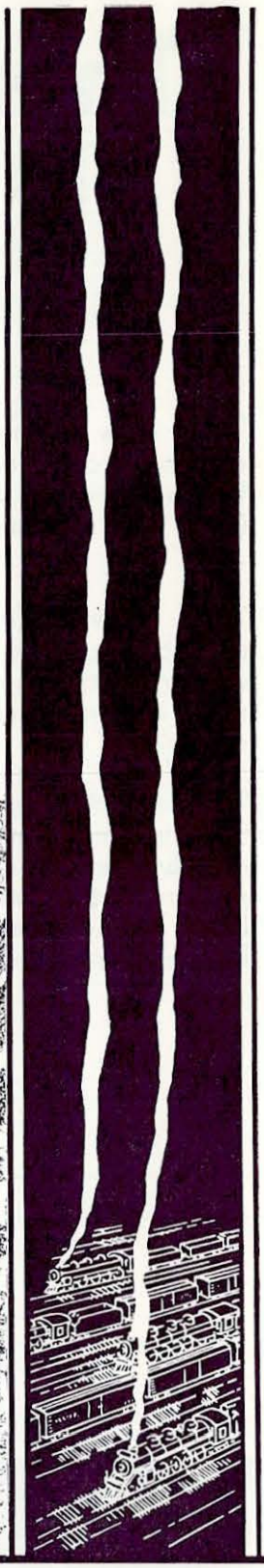
If the carriers could buy what they urgently need, and want to buy, business conditions, particularly among the durable goods industries, would thereby be stimulated. » » » » » » » » »

New facilities and new methods, now available, that help attract new traffic and reduce operating expense, can be introduced by the railroads with increasing proportion as earnings permit. » » » »

For example, this company has many new devices ready for railway use that will increase operating efficiency. Their value has been recognized and they will be purchased when sufficient buying power has been brought about by initial impetus toward greater earning power needed NOW.

A decided improvement here will have widespread cumulative effect and materially hasten national recovery.





WESTINGHOUSE AIR BRAKE CO.
General Office and Works—Wilmerding, Pa.

There it is . . . .
IN BLACK AND WHITE

" . . . new locomotives will be needed not only on account of the existing shortage but because they can be operated at high speeds (and) with substantial savings in maintenance . . . "

" . . . activities (in durable goods) might be profitably extended . . . in the modernization of railroad equipment with resulting improvement in service and reduction of costs of operations."

The demand for greater efficiency and lower operating and maintenance costs has been adequately filled by a number of impressive improvements (such as those) introduced in Sunbeam Turbo-Generators and Sunbeam Headlights during the past year.

—yet, in order to meet their fixed charges, many railroads are forced to maintain obsolete equipment, at a costly sacrifice to public interests—through the results of unfair competition and unconstructive legislation.

—yet man- and machine-power of hundreds of equipment manufacturers and materials producers which constitute a large portion of the durable goods industry are virtually at a stand-still—solely because the railroads lack purchasing power to command that needed activity.

—yet railroads are heavily burdened with worn-out equipment—consequently with increasing costs of upkeep and repairs—because lagging gross earnings prohibit investment in new and efficient equipment.

AS a part of that tremendous industry (the durable goods) which is dependent largely upon purchases by the railroads—

As a party to that vast enterprise (the Nation's Recovery) which is dependent largely upon the vitality of the railroads—

We join in the demanding immediate remedies—in the way of fair legislation and regulation—needed to restore railway purchasing power.

SUNBEAM

Canadian Representative
RAILWAY ENGINEERING SPECIALTIES, LTD.
MONTREAL, QUE.

General Export Representative
THE BALDWIN LOCOMOTIVE WORKS
PHILADELPHIA, PENNA.

SUNBEAM ELECTRIC MANUFACTURING CO.
EVANSVILLE INDIANA U. S. A.
PHILADELPHIA NEW YORK SAN FRANCISCO

Vision

"Where there is no Vision the people perish..." BUT—

C AND O

where there **IS** *Vision*

". . . But smooth the road and make easy the way (between East and West), and see what an influx of articles will be poured upon us; how amazingly our exports will be increased by them, and how amply we shall be compensated . . ."

—George Washington to Governor Harrison of Virginia, 1784

George Washington, first and foremost of our practical statesmen, was a man of exceptionally broad vision. Moreover, he translated his far-sighted views into action and helped to found a transportation company which grew into a great modern railway system.

Today Chesapeake and Ohio stands as an enduring monument to the great dream that was George Washington's—a lasting tribute to his broad vision. But the need for

the people PROSPER

broad vision in dealing with transportation problems has not passed. Statesmen today would do well to look to the future with a discerning eye and an open mind, remembering that where there is no vision the people perish, but where there is vision the people prosper.

It is wise to hark back to the words of the father of our country. And it is fitting that the Chesapeake and Ohio, George Washington's Railroad, should at this time make a frank plea for vision in dealing with transportation problems. Prosperity will not return to this country until the railroads again prosper.

Vision

THE FINEST FLEET

OF AIR-CONDITIONED TRAINS IN THE WORLD

The George Washington
The Sportsman · The F. F. V.

George Washington's Railroad

CHESAPEAKE and OHIO Lines

Original Predecessor Company Founded by George Washington in 1785

The EDGEWATER RING SPRING DRAFT GEAR

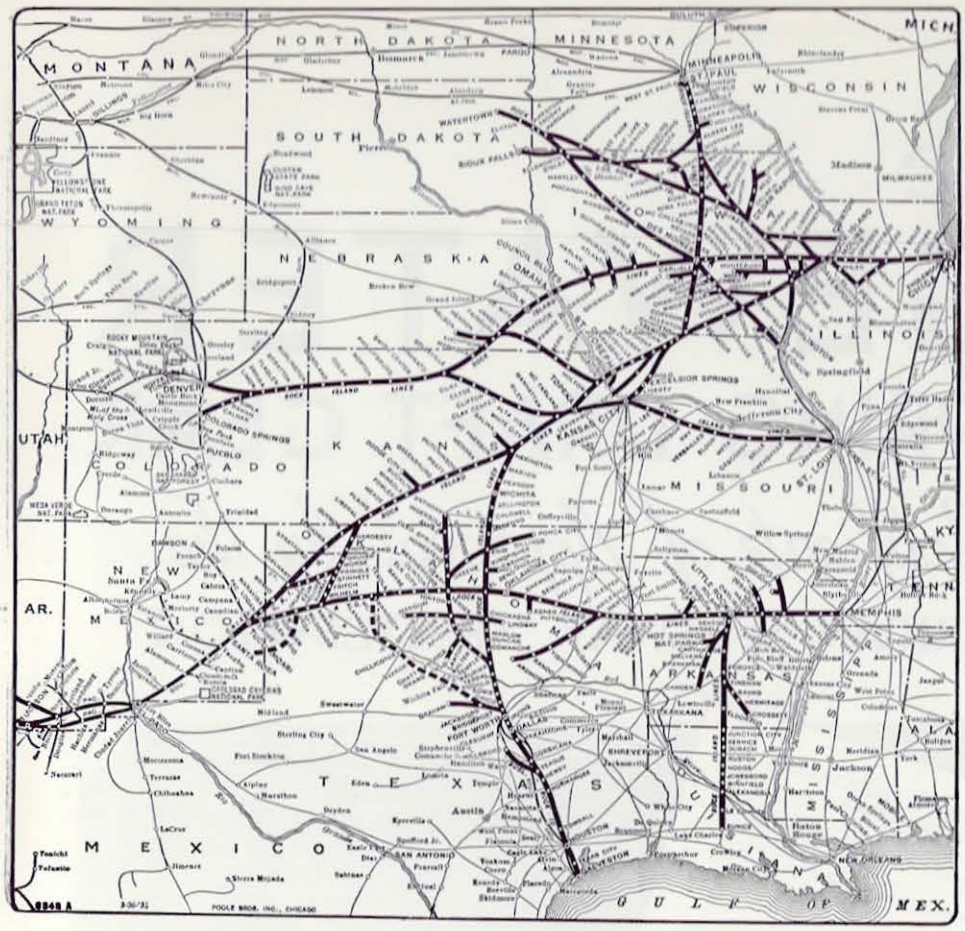
Awarded Certificate of Approval by the AMERICAN RAILWAY ASSOCIATION

AMERICAN RAILWAY ASSOCIATION
DIVISION V—MECHANICAL
COUPLER AND DRAFT GEAR COMMITTEE
Certificate of Approval for Draft Gear
Number SEVEN
Manufacturer EDGEWATER STEEL COMPANY
Type Designation of Draft Gear
EDGEWATER TYPE B-32-KA
Date of Certificate JUNE 20, 1933
Issued under A. R. A. 1931
This certificate is evidence that the Coupler and D
mittee of Division V, Mechanical, American Railway
tested the above type of draft gear and approves it as m
gear specifications of the American Railway Associatio
effect at this date. Appended hereto, and forming part o
for the purpose of identification, are photographs and
this type of gear.
Certified report of test of this gear, dated 6-10-33
in the office of the Secretary of Division V, Mechanical, America
way Association.
American Railway Association
Division V, Mechanical
Secretary
B-32-KA

EDGEWATER STEEL COMPANY

PITTSBURGH, PENNSYLVANIA

Atlanta Boston Kansas City New York Portland
Baltimore Chicago Louisville Philadelphia San Francisco
St. Louis Seattle St. Paul Washington



For 82 The Served

A Willing Public Servant for Three Generations

Since 1852, the Rock Island, a pioneer railroad, has been a great force for national progress. The first to bring railway transportation to many parts of the Middle West and Southwest, it made possible the full development of this great area. Now, the 8,300 miles of Rock Island Lines render an essential service in fourteen states, rich in natural resources and of the highest agricultural productivity.

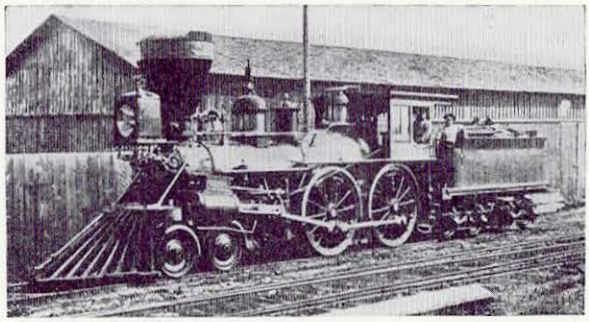
The Rock Island Lines are important in themselves, to the nation as well as to the region which they serve directly. Normally, they have an annual payroll of $60,000,000; employ an average of 35,000 men and women; and spend for equipment and supplies each year more than $40,000,000. Thus, the annual contribution of the Rock Island to industry and to trade is normally $100,000,000 — a sum which represents a living for no less than 275,000 people. Almost 50 per cent of the more than $8,000,000 in annual taxes normally paid by this railway go toward the support of public schools — an amount normally sufficient to pay for the schooling for one year of 40,000 children.

The Rock Island Lines are important for the benefits which they have conferred upon agriculture and industry in the territory served by them. This railway has given the earliest access to important new oil fields. It has helped the farmers along its lines to produce more and better crops. It has aided manufacturers in locating their plants and has guided them in finding markets, and is constantly active in the study of possibilities for further industrial development. Most important of all, the Rock Island, with unsurpassed train service, has secured and maintained markets for the oil fields, farms and industries which it serves.

Rock Island

Rock Island

YEARS
ROCK ISLAND Has The Nation Well



The "Rocket", First Locomotive of the Rock Island Railroad

For 82 years, the Rock Island, recognizing its responsibilities as a public servant, has done its best for the region served by its lines and thus for the nation. Now, it is anxious to do more. It is ready and eager, by whatever means, to assist in the drive toward National Recovery. The Rock Island realizes that its normal payroll and its normal purchases mean much to the national welfare. None more than the management of the Rock Island wants the employment and buying power of this railroad to be at normal levels.

But this railway has been weakened, its resources curtailed. Its revenues have declined sharply. Its expenses have had to be drastically reduced. Thousands of employes have had to be laid off. Purchases have had to be rigidly limited to the absolute essentials. The ability of the Rock Island to contribute to the national welfare has been lessened.

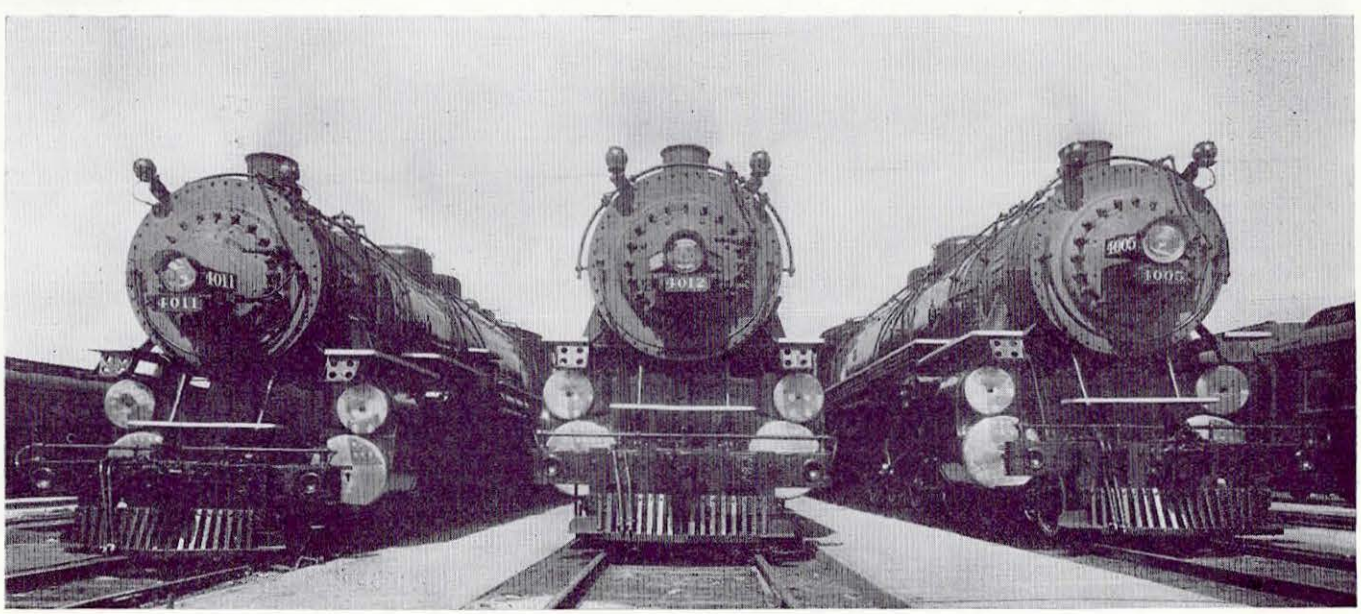
Two things have weakened the Rock Island — first, the general depression in all lines of business; second, the peculiar and indefensible conditions in the transportation industry. With the railroads hampered by unnecessary restrictions and regulations, and competition from other forms of transport not only largely free from such restraints but aided as well by government subsidies, the earnings of the Rock Island have been reduced far more than would have have been caused by the depression alone.

The Rock Island Lines plead for legislation to remove the unfairness of the competition to which the railways are now subjected. The management of the Rock Island is confident that, when all forms of transportation have been placed on an equal footing, the revenues of the railway will increase.

More earnings for the Rock Island will mean more business activity, more employment and greater purchasing power, not only along its own lines but throughout the country as well.

Rock Island

Rock Island



Modern Locomotives Which Pull the Rock Island Lines' Famous Golden State Limited, Rocky Mountain Limited and Iowa-Nebraska Limited Trains

The Safe and Sure Guide

Locomotive engineers are responsible for the safety of millions of lives—a heavy burden. All too generally a sixth sense, intuition if you will, plays too large a part in locomotive operation. Today engineers do not need to rely on intuition alone. There is a safe and sure guide—the LOCO VALVE PILOT.

VALVE PILOT CORPORATION
230 PARK AVENUE
NEW YORK

FFICE OF THE PRESIDENT

October 15th, 1934

The railway empire is far-flung. In it are invested the savings and hopes of millions of people. Savings and hopes and the inventive genius and scientific research of a century are invested in the railway supply industry.

Behind them, in turn, stand the sources of supply, the manufacturers from New England to the Pacific, the mechanics, the artisans, the skilled workers whose livelihood depends on a demand for the products of their industry.

In "hard times" the railway supply industry goes on with study and research, improvement of product and methods of manufacture, telling its story but not getting very far because if the potential buyer is financially "pinched" what does it avail to offer a superior device or material which will assure greater safety and economy?

There is no individual or group, shop or office, store or factory, private enterprise or corporate industry, no city, town or village which is not directly or indirectly served by the railroads or does not in turn serve them. Whatever helps the railroads helps the country. Whatever gives our railroads the power and the means to buy that which spells safety, economy and betterment, will do a greater good for a greater number of people than any other single thing which can be done.

Too many railroads are today doing without many safety and efficiency devices of which the LOCO VALVE PILOT is but one. All railroads need them but lack the "wherewithal". With the LOCO VALVE PILOT as with many other devices, they could save money too, but their necessity does not stir them to act because in times of financial stringency expenditures are cut to the bone - often to a point where saving at the spigot means wasting at the bung.

The railroads need equipment of all kinds. The railway supply industry and every industry which serves it needs a market. Workers need jobs. This is not a theory - it is a condition.

An enlightened and constructive policy towards the railroads and all other means of transportation is what we need. The people are looking for the relief which will come with a restoration of the buying power of the railroads and for the return of prosperity to the railroads, to those they service and to those who serve them.

Wm Beeg Waith.

President

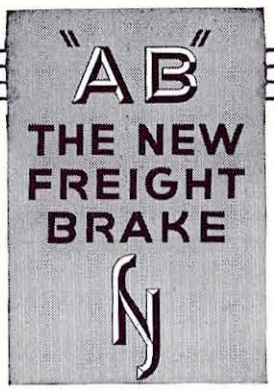
RESTORATION OF "RAILROAD PRODUCTIVITY" IS IN THE PUBLIC INTEREST

THE NEW YORK AIR BRAKE COMPANY

Over a period of many years, the Railroads were among the leading productive influences contributing to this Nation's growth, general wealth, and progress.

All classes of citizens enjoyed benefits directly or indirectly through the comprehensive activities connected with, and created by, operations of the Railroads. Then came a period when these constructive influences found themselves handicapped by circumstances largely beyond their control.

Public Interest over a wide front will again be served with increasing benefit through the adoption of measures designed to assist in restoring to Railroads, that productivity which played such a prominent part in making this country a leader among nations that are truly great.



420 Lexington Avenue, New York City • PLANT: Watertown, New York

Subsidized Competition Endangers A Vital Link Between North and South

THE Richmond, Fredericksburg and Potomac Railroad constitutes a link in the through route between North and South, and, in many respects, the problems it must face are identical with those of its connecting lines. Shrinkage of traffic since the end of 1929 has been merely an acceleration of similar tendencies already in evidence. Passenger traffic has been declining since 1926 chiefly because of automobile and bus competition. Freight handled is likewise showing a steady decrease coincident with an increase in freight moved by subsidized coastal steamship lines and by unregulated highway transport.

The 1929 revenue freight carried by the R. F. & P. R. R. amounted to 4,774,295 tons, as compared with 2,822,687 tons in 1933, a reduction of nearly 41 per cent. Passengers carried in 1929 totaled 1,290,018—in 1933 the the number was 581,190, a reduction of 55 per cent. Railway operating revenues were correspondingly reduced from $11,843,825 in 1929 to $5,885,276 in 1933—a loss of 50 per cent, in the same period.

A brief examination of these statistics will provide ample evidence that for the Richmond, Fredericksburg and Potomac, the business depression since 1929 has been a period of major calamity. This calamity, however, is seriously aggravated by the fact that an important volume of freight and passenger traffic is being diverted to water and highway transport agencies—which are directly and indirectly subsidized by the federal government.

The ultimate goal of all transportation policy should be to furnish the people with the transportation service they require in the cheapest and most efficient manner possible; whereas, whatever policy we have at present is founded largely on political expediency that results in utterly unfair discrimination against the railways—strangling and eliminating the cheapest, most efficient and **safest** form of land transportation ever devised by human endeavor.

A PERPETUAL TRAGEDY OF COLOSSAL PROPORTIONS

Highway transportation today is demanding a toll of nearly 40,000 lives each year, in addition to hundreds of thousands wounded and incapacitated! In the face of such a safety record can there be any thought of cheapness or efficiency? And, how does the Richmond, Fredericksburg and Potomac Railroad compare in the vital matter of safety? This road was incorporated in 1834 and started transportation in 1836—it has, therefore, been in operation for almost a century. **During this entire period of nearly 100 years, there has not been a fatality to a single revenue passenger carried in its cars.** Train operation today is safe-guarded by a multiplicity of control devices—while on our highways the density of high-speed traffic is productive of hazards resulting in a perpetual national tragedy of colossal proportions.

It is obvious that the present condition of American railways is an outstanding reason for the far-reaching and continued severity of business depression. The railroads constitute such a large fraction of the country's economic life that failure to maintain their customary rate of disbursements to owners, employees and to those from whom they buy, provides in itself a depressive factor of overwhelming magnitude.

RICHMOND, FREDERICKSBURG and POTOMAC RAILROAD

Nicholson Thermic

SYPHONS

and

CYCLONE

Front Ends

are essential features in the economical operation of new and old high speed locomotives.

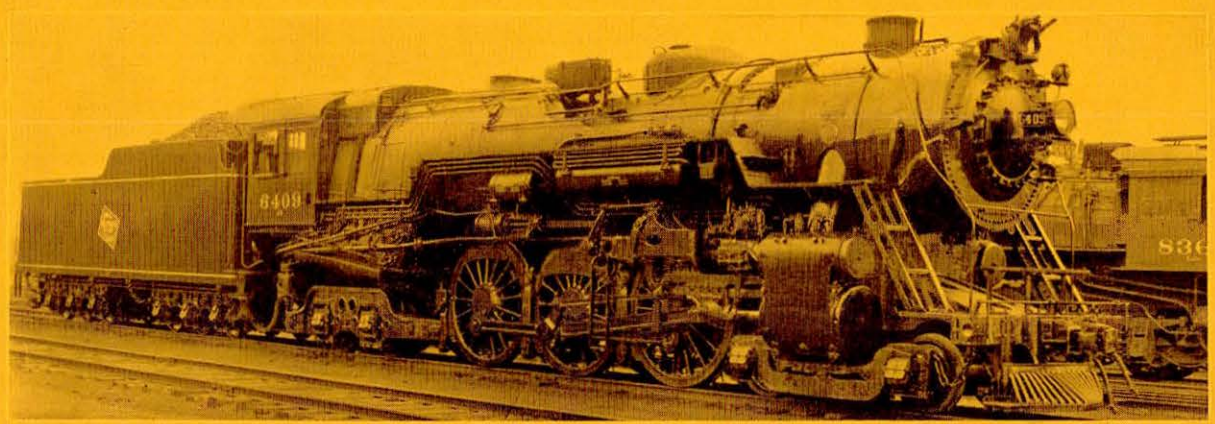
Speeds necessary to meet present and future requirements are supported by these recognized appliances.

Both devices add steaming capacity to a locomotive. The increase of exhaust nozzle area possible by using the Cyclone Front End REDUCES BACK PRESSURE 30 to 45%, an important factor in producing a freely running, fast locomotive.

CHRISTY

Pneumatic Lubricators

The Christy Lubricator eliminates hot boxes in engine and trailer trucks equipped with friction bearings, an important aid in meeting fast schedules.



Locomotive 6409, of the same class as locomotive 6402

C. M. St. P. & P. locomotive No. 6402 that recently made the 85 mile run from Chicago to Milwaukee in one hour and seven minutes is equipped with Syphons.

LOCOMOTIVE FIREBOX COMPANY

NEW YORK CHICAGO MONTREAL

Water Treating *on a Scientific Basis*

Scientific methods for the improvement of boiler water supplies originated in Dearborn Laboratories and developed through 47 years of research and field service, to the present day effectiveness and economy in boiler water conditioning.

Great Savings *accomplished through Rust Prevention*

NO-OX-ID Rust Preventive Coatings, developed by Dearborn Laboratories, are a valuable maintenance economy in the preservation of steel, due to low cost, ease of application, large covering capacity, and long life.

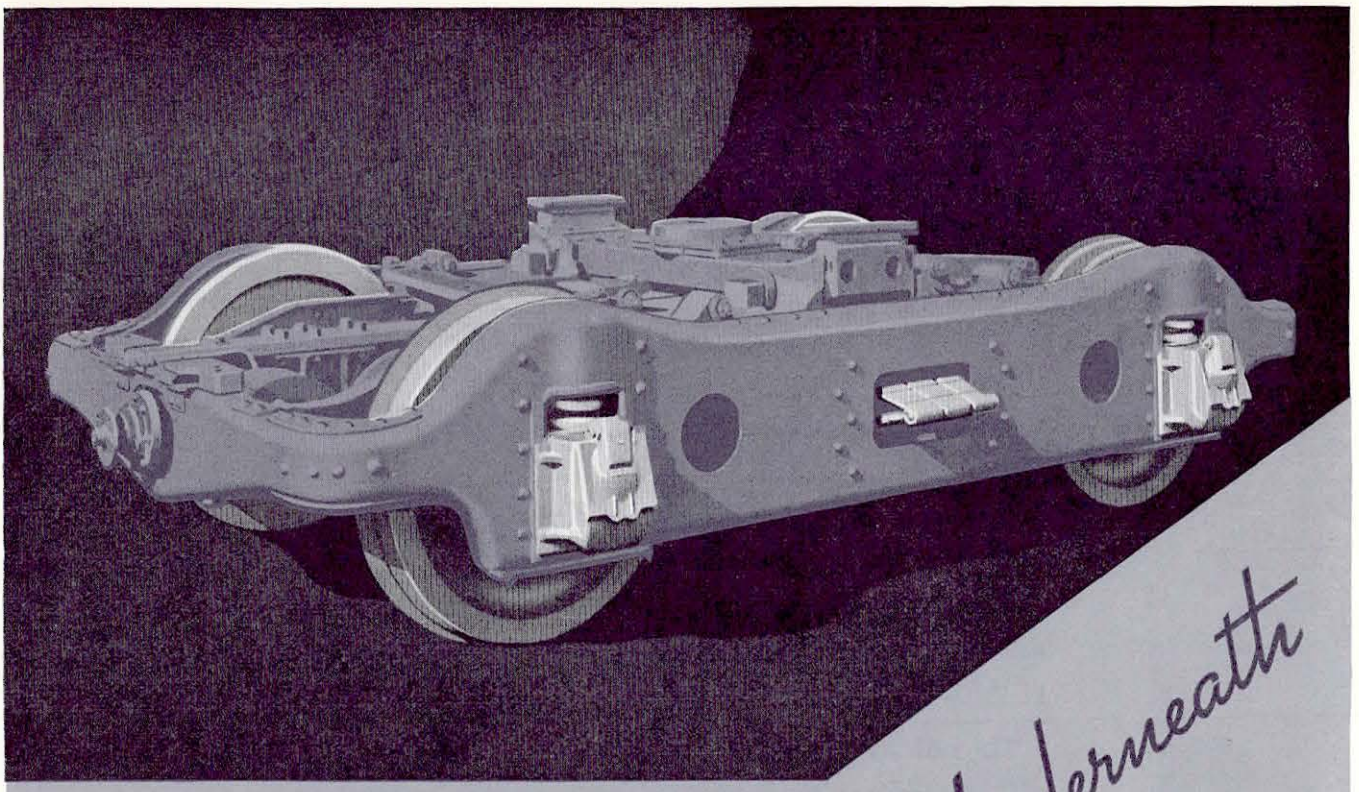
Dearborn products and service are used throughout the world.

Dearborn
TRADE MARK REGISTERED

DEARBORN CHEMICAL COMPANY

Established 1887

CHICAGO NEW YORK LOS ANGELES



LOOKING AHEAD *Underneath*

ALCOA ALUMINUM

● The trend to car-bodies of Alcoa Aluminum is marked. It has momentum. It is going places in both passenger and freight service.

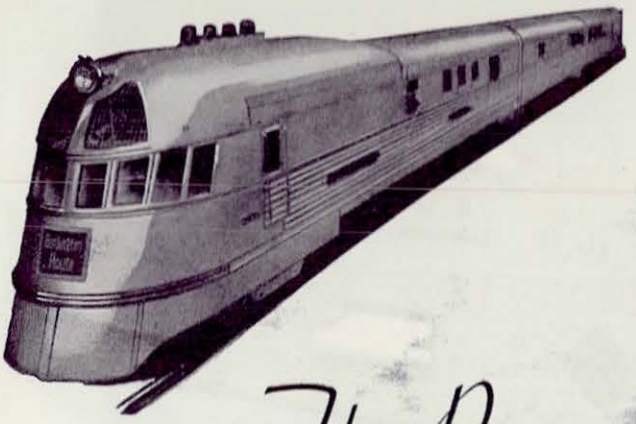
Now let us center your attention underneath the car, on the trucks. Let us speak of weight first of all. The overall weight of passenger car trucks, *including wheels and axles,* can be reduced 40% by building many of the parts of Alcoa Aluminum.

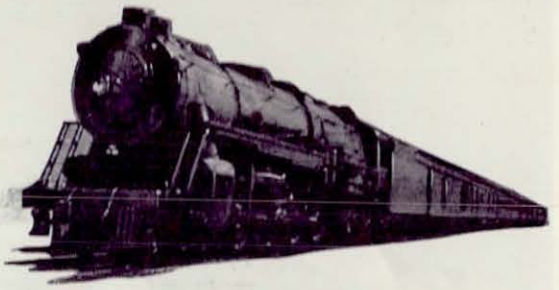
Strong and tough, Alcoa Aluminum forgings, pressed members and standard shapes in strong alloys are used in the trucks under the all-Aluminum deluxe coach recently built by Pullman Car and Manufacturing Corporation. All major parts in these trucks, with the exception of wheels, axles, springs, and journal boxes, are Alcoa Aluminum. Three-quarters of a million miles of high speed interurban, and street car service, testify to the ability of Aluminum trucks to stand the gaff. Equipped with frictionless type bearings, even the axles of tomorrow will be of Alcoa Aluminum, thanks to extensive forging experience under the rigid requirements of the aircraft industry. Street car tests now in progress justify this prediction.

All this saving in unsprung weight is achieved *without any decrease in the present high factors of safety maintained on American railroads.*

For details, engineering cooperation, information without obligation, address ALUMINUM COMPANY OF AMERICA, 1878 Gulf Building, Pittsburgh, Pennsylvania.

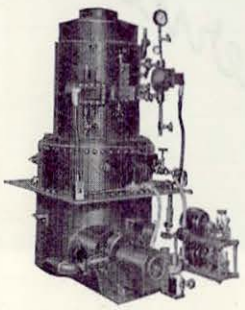
ALCOA · ALUMINUM





The Present Progress

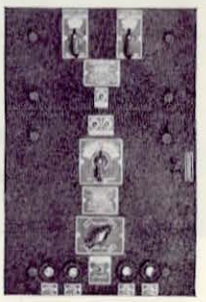
in Transportation proves the value of co-operative research and development by the railways and the manufacturers of railway materials.



Steam Unit

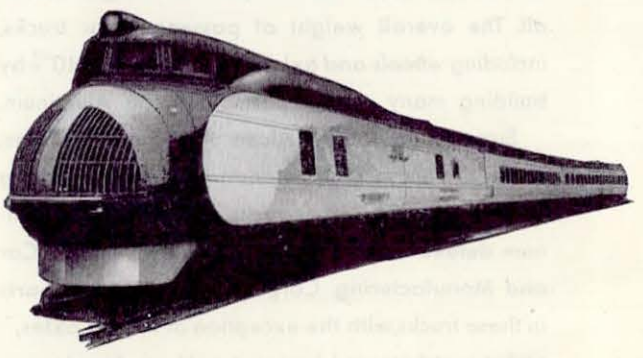
The railway modernization program—including Air Conditioning—has already aroused intense public interest and approval.

The art of passenger car temperature regulation has kept pace with the development in transportation. "Vapor" products now provide economy and comfort for every type of train service.



Control Panel

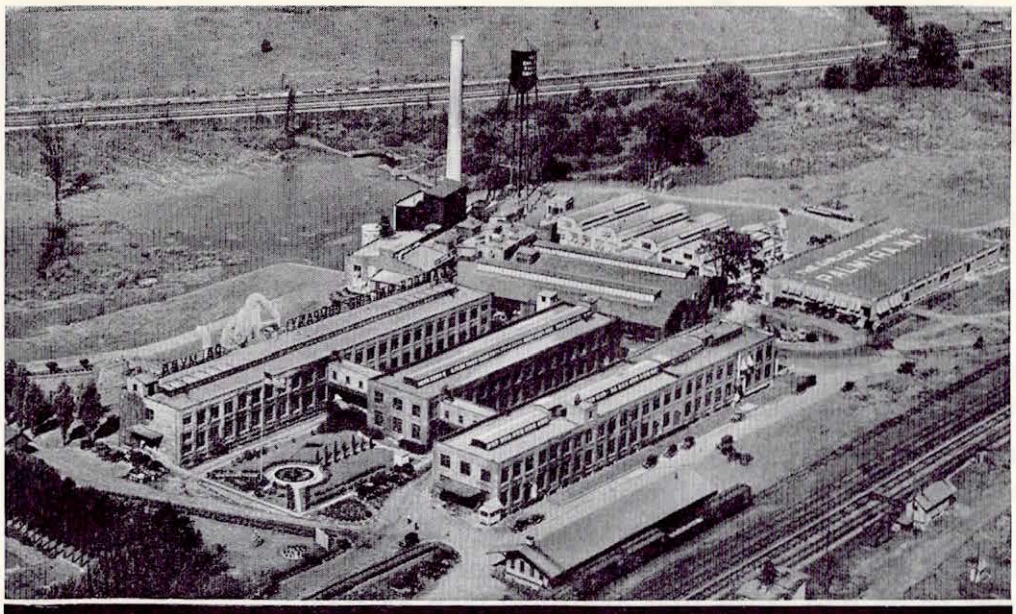
Passengers are constantly comfort conscious, regardless of outside temperatures, with the use of "Vapor" Thermostats and Control Panels, designed for every type of Air Conditioning Equipment.



The correct automatic and uniform regulation of passenger car temperatures presents problems distinctly unique—best solved by experts in passenger car temperature regulation.

VAPOR CAR HEATING CO. Inc.

RAILWAY EXCHANGE, CHICAGO, ILLINOIS



THE GARLOCK PACKING COMPANY
Factory at Palmyra, New York
Manufacturers of Mechanical Packings Since 1887

Railway Purchases Help This Industry!

THE stimulation of railway purchases will benefit directly the durable goods industries where unemployment continues at high levels. Directly or indirectly it will benefit all other industry.

The Village of Palmyra, New York, with a population of some 2,500, is almost entirely dependent upon the mechanical packing industry for its livelihood. In other parts of the country, where branch offices and factories of The Garlock Packing Company are maintained, the same is true of several hundred additional workers.

The railroads represent the largest single market for the sale of mechanical packings. Resumption of normal buying by the railroads, with the resulting increased activity in the durable goods industries where packings are also used extensively, is a major factor in maintaining steady employment in this smaller industry.

Before we can have national recovery the railroads must buy heavily. To that end, fair, proper and immediate legislation which will pave the way for increased railway earnings is urgently needed.

THE GARLOCK PACKING COMPANY, PALMYRA, NEW YORK
In Canada: The Garlock Packing Company of Canada, Limited, Montreal, Quebec

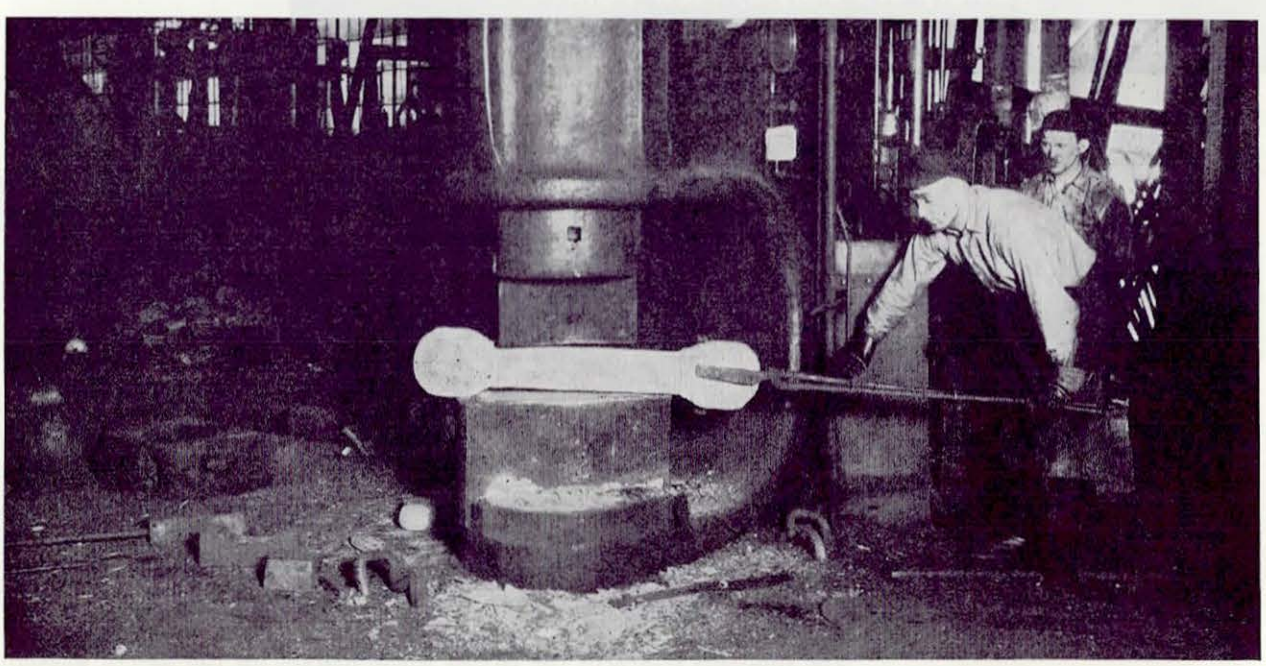
GARLOCK

from
VULCAN IRON FORGING BILLETS

IN forging locomotive and passenger car parts such as spring hangers, tender truck swing link bars, draw bars and equalizers, UNIFORMLY DEPENDABLE IRON is vitally important; not only in the process of forging, but even more so in their relation to maintaining lower cost operating efficiency and higher factor of safety.

The built up structure of VULCAN IRON gives it individuality for it possesses certain features that are exclusive and which over a period of many years have established records of sustained performance resulting in worth-while economies not to be had from just ordinary iron or steel.

A VULCAN IRON for every purpose.



VULCAN BLOOM STAYBOLT IRON
VULCAN XX ENGINE BOLT IRON

LOCKHART IRON & STEEL CO. PITTSBURGH, PA. VULCAN

LOCKHART IRON & STEEL CO.

DIRECT MILL REPRESENTATIVES
BLATCHFORD CORPORATION
RAILWAY EXCHANGE,
CHICAGO, ILL.

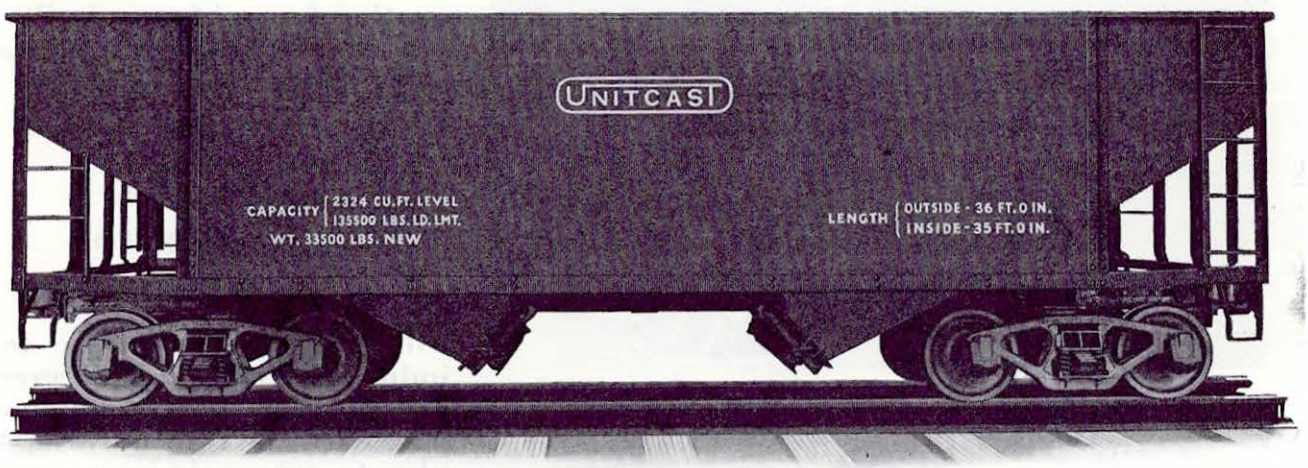
Pittsburgh, Pa.

Unitcast Construction With Conventional Carbon Steel Sheets, Standard A.R.A. Trucks and Z-26 Center Sill. Revenue Ratio With 52 Lb. Coal—76.4%.

THERE IS A PLACE IN EVERY CAR

WHERE UNITCAST DESIGN

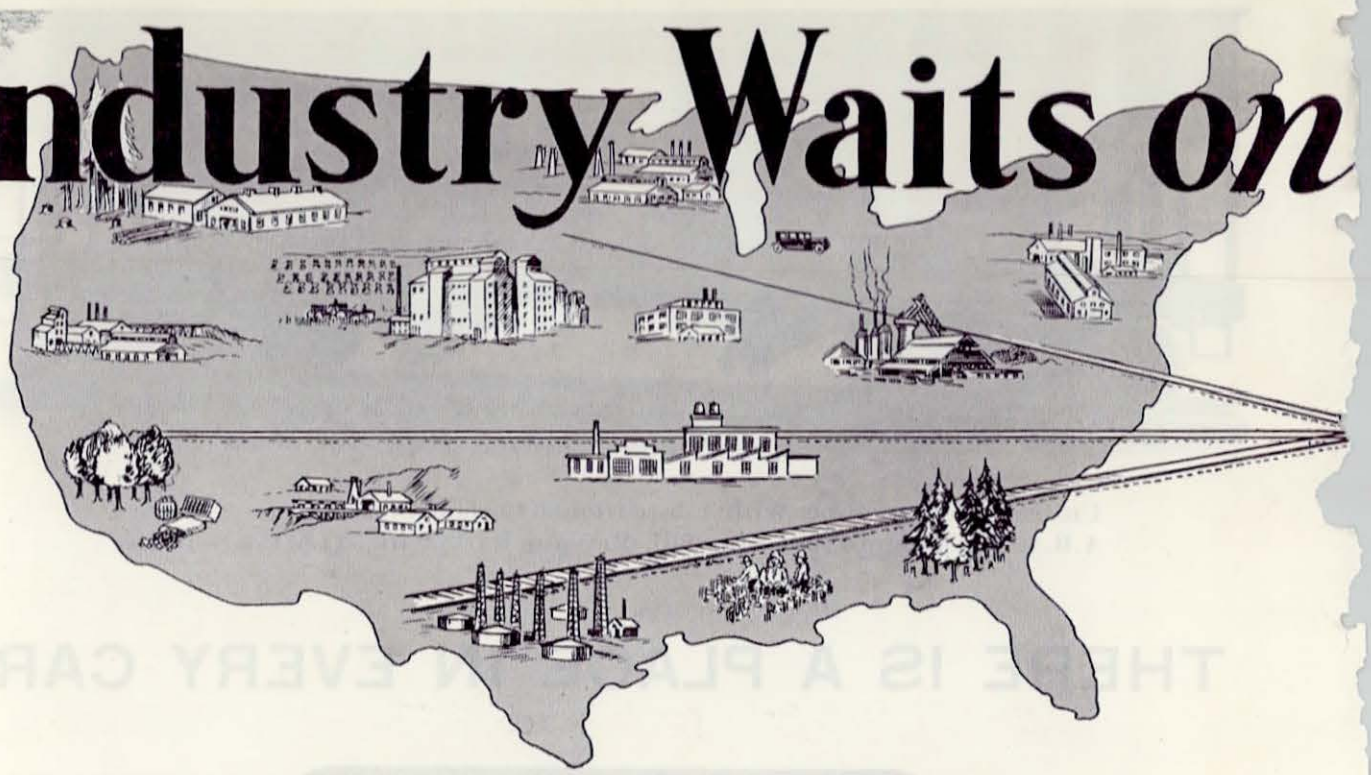
WILL SAVE WEIGHT



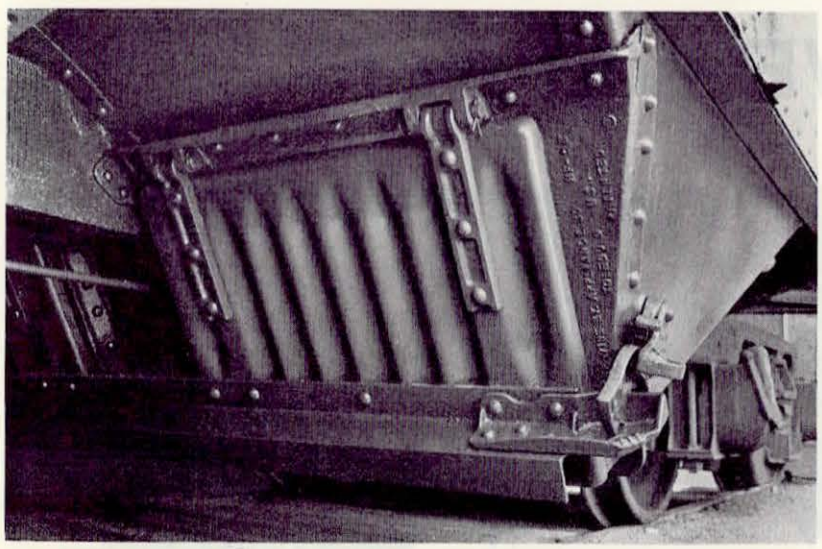
Unitcast Construction With Alloy Sheets, Welded Design and Standard A.R.A. Trucks. Revenue Ratio With 52 Lb. Coal—80.18%.

THE UNITCAST CO. **TOLEDO**

Industry Waits on



but SUCH RECOVERY DEPENDS ON REMEDIAL LEGISLATION!



UNEQUAL COMPETITIVE RELATIONSHIPS

must inevitably be eliminated by constructive attention to transportation regulation. Inequalities that exist through subsidies in the form of tax built and maintained highways and waterways can only be properly adjusted by legislation.

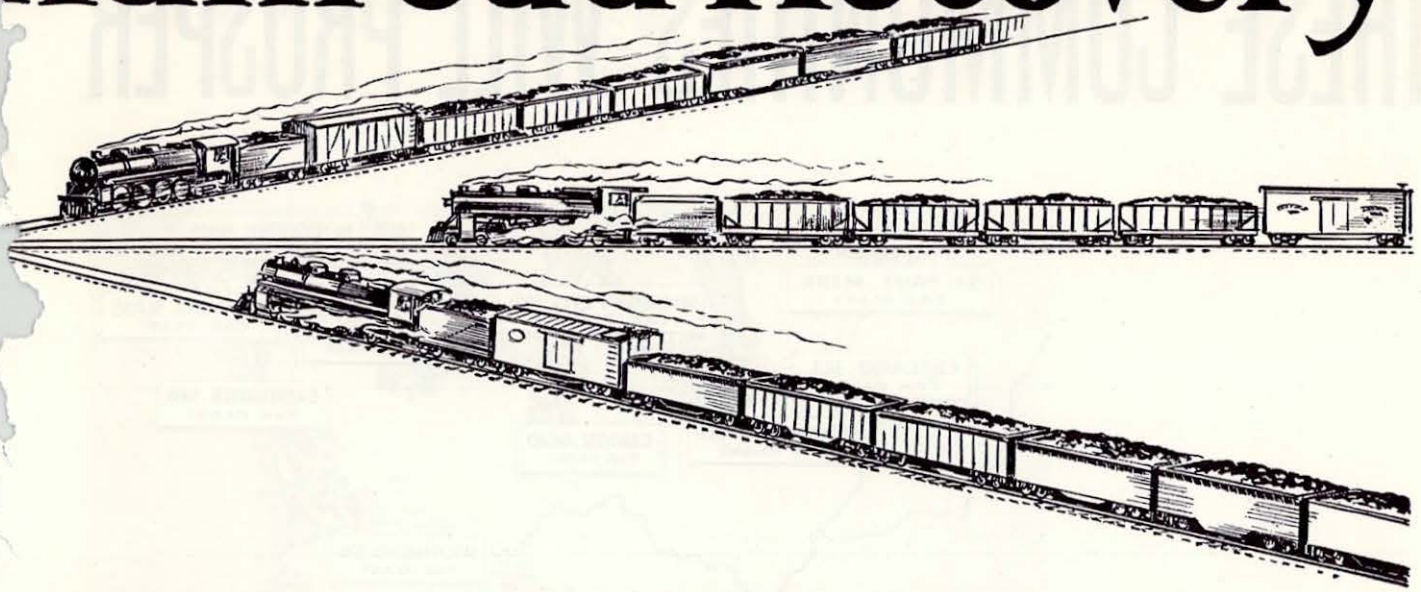
NORMAL RAILROAD DISBURSEMENTS

will add a big impulse to all industry. Once normal revenues are restored, railway purchasing power will be that natural stimulus to economic improvement.

THE WINE RAILW

MUNSEY BUILDING
Washington, D. C.

Railroad Recovery



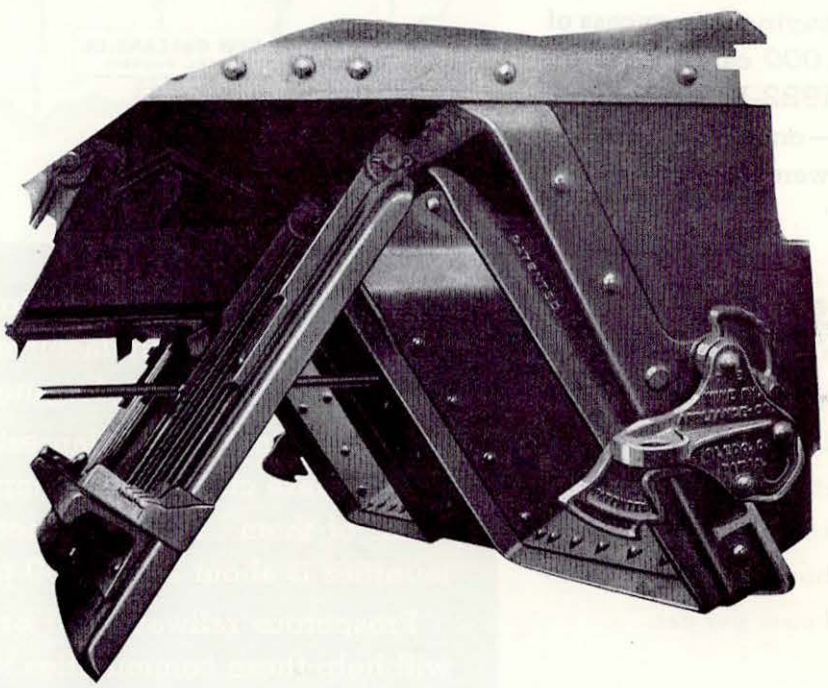
MODERNIZED EQUIPMENT WILL CONSERVE RECOVERED REVENUES

AMERICAN RAILROAD OPERATIONS

have been revised with thoughtfulness and extreme care. The railroads are in an excellent position to take advantage of every revenue increase that remedial legislation will bring.

NORMAL PURCHASES OF EQUIPMENT

materials and devices will further augment net earnings by reason of the economies made possible through efficient operation. Such purchases will enable thousands of manufacturers to contribute their share towards returning prosperity by increasing employment.

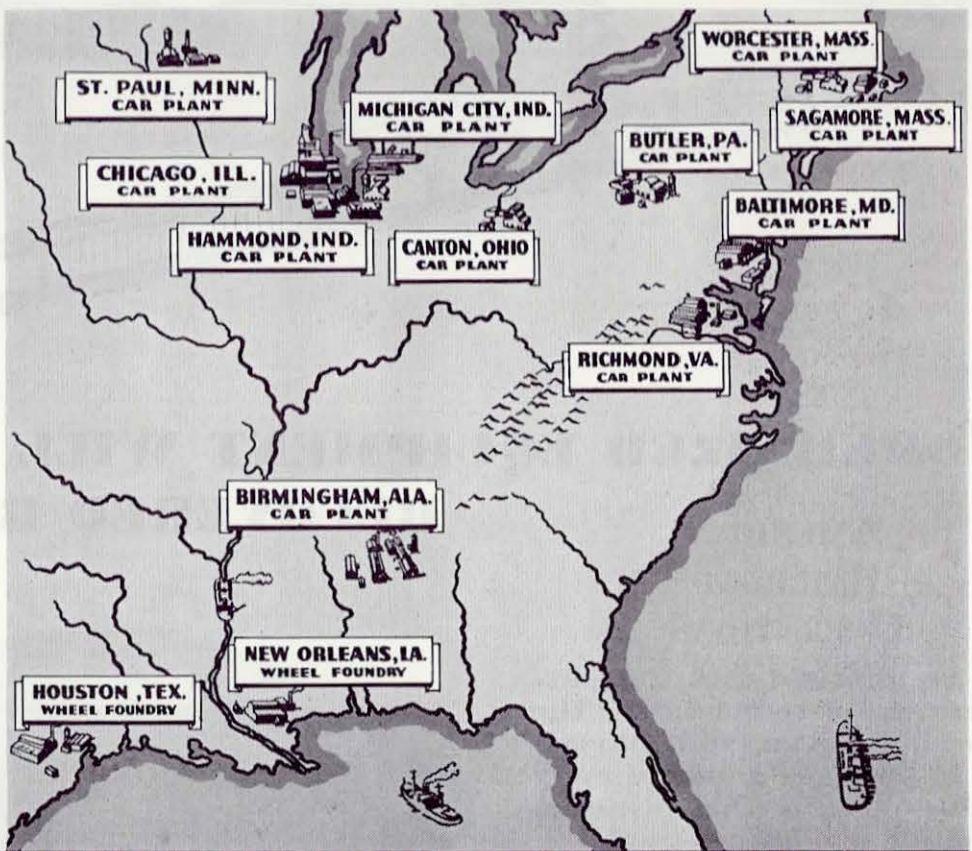


AY APPLIANCE CO.

TOLEDO, OHIO

IF FREIGHT CAR BUYING IS RESTORED TO NORMAL

THESE COMMUNITIES WILL PROSPER



● Normal annual freight car buying is in excess of *100,000* cars (based on the 1922-1929 average). But—only *2,160* freight cars were ordered in 1933.

● The labor—direct and indirect—required to build 100,000 freight cars represents more than 180,000,000 man-hours, or 1800 man-hours per car.

In these communities are located the 13 plants of the Pullman Car and Manufacturing Corporation and affiliated companies...car plants, forging plants and car wheel plants.

These plants are the largest employers of labor in several of these cities and an important factor in employment in all of them. The combined population of these communities is about 2,000,000 people.

Prosperous railways will bring normal car buying and will help these communities to prosper.

PULLMAN CAR AND MANUFACTURING CORPORATION

STANDARD STEEL CAR CORP. • PULLMAN-BRADLEY CAR CORP.

IF FREIGHT CAR BUYING IS RESTORED TO NORMAL

THESE MATERIALS WILL BE PURCHASED

PIPE	7,500,000 FEET
PAINT . .	2,300,000 GALLONS
LUMBER .	274,000,000 BOARD FEET
WHEELS . . .	300,000 TONS
ROLLED STEEL .	1,350,000 TONS
BRASS CASTINGS . .	9,650 TONS
FERROUS CASTINGS .	360,000 TONS

These figures show the amount of materials which would be purchased for the building of 100,000 freight cars of all types . . . the normal number built annually (based on an eight year average).

•

Each freight car purchased means creating a job for a man for more than one year

● Proper legislation will permit the railways to increase their net operating income, buy the cars they so urgently need and aid the durable goods industries, of which we are a part, in their return to prosperity.

PULLMAN CAR AND MANUFACTURING CORPORATION

STANDARD STEEL CAR CORP. • PULLMAN-BRADLEY CAR CORP.

Will New York State Continue to Make "Canal Mules" of its Taxpayers?

BY the sweat of their brow, through some form of manual or mental effort, hard-pressed and over-burdened taxpayers in the great Empire State hauled about 3,000,000 tons of freight through the Barge Canal last year. When we realize that no charges were made for this service, the situation becomes comparable to the conditions of oppression on the canal towpath.

Since 1905, the Barge Canal has cost the people of New York State more than $150,000,000. This represents approximately the total of outstanding canal bonds which at 4% interest compel the taxpayers to pay $6,000,000 annually. Operating costs add nearly $4,000,000 to the staggering tax burden of the citizens of the Empire State. It is worthy of comment that this public expenditure has become a perpetual burden upon the taxpayers. Neither the original cost of the canal nor the cost of its operation is in any sense self-liquidating.

Operating statistics for last year show that each ton of freight handled through the canal cost the taxpayers of New York State $3.33. The Lackawanna Railroad, which paid to the collector its share of taxes, gladly would have handled this freight at the prevailing rates; and had it done so it would have saved several millions of dollars for the citizens of New York State.

The refusal by the United States Senate to ratify the St. Lawrence treaty was a gratifying indication that those representatives of the American people had made a thorough study of the deplorable situation in the transportation industry and that they realized that financial disaster threatened their constituents, communities and industries as well as the railroads if subsidies to other forms of transportation were continued by the government.

There is plenty of evidence which proves that the problems of our nation are largely the result of the chaotic conditions in the transportation industry. Remedial legislation, equal regulation, reduction in governmental subsidies and less interference with sound business institutions will help to solve these problems, will put millions of people back to work and will reduce the tax burden which threatens future generations with economic slavery.

THE DELAWARE, LACKAWANNA & WESTERN RAILROAD CO.
140 Cedar Street **New York City**

SPEED & ECONOMY

OUR principal transportation arteries, the railroads, while they have had a marked reduction in traffic, have more greatly reduced expenditures for maintenance of way and structures and for special trackwork, as shown in the following tabulation.

	Revenue Freight Carloadings Class 1 Railroads	Average Annual Expenditures Maintenance of Way and Structures Class 1 Railroads	Purchases Special Trackwork
10-year period 1922-1931, inclusive	100% normal	$782,000,000.00—100% normal	100% normal
2-year period 1932 and 1933	59% of normal	$337,000,000.00—43% of normal	18% of normal

R. R. total operating revenues fell off in the 2-year period above, to 53% of normal.

These statistics have been obtained from reports of the Committee on Public Relations of the Eastern Railroads and American Iron & Steel Institute.

It will be noted in above that expenditures for special trackwork (which includes switches, frogs, crossings, switch stands and accessories), one of the substantial items included in expenditures for maintenance of way and structures, have fallen off in drastically larger proportion than the total.

Passenger train speeds of 100 miles an hour and ever faster freight trains represent the new tempo of railroading.

•

While railroad maintenance forces have done wonders in keeping up their tracks with funds available, yet, in many cases, rolling stock is traveling over patched-up roadbeds which cannot endure indefinitely.

•

This enforced policy of economy has caused a situation which must be faced. When you have to save on absolute necessities, you are merely borrowing against the future.

•

Roadbed and the equipment which goes with it are the foundation not merely of a physical structure, but also of the business of transportation.

•

Practical railroad men are aware of the profound truth of this message.

In view of the short-buying during the depression years every railroad should be stimulated and encouraged to re-examine and remedy the condition of its tracks and track equipment in the interest of public service.

Encouragement must be given by elimination of undue restrictions and taxes, as well as, in many cases, by financial assistance, considering, in this connection, what is being done for other forms of transportation, as indirect subsidies, practically free rights of way, etc.

The railroads should be put upon an earning basis to permit buying of necessary materials. This would result in putting to work a large percentage of the present unemployed, including those in the durable goods industries that serve the railroads.

It has been estimated that approximately 80 per cent. of the money spent by the railroads on maintenance of way and structures goes into labor, if the various steps of labor employed on materials from their native raw state to the finished products installed on railroad properties are included.

MANGANESE TRACK SOCIETY

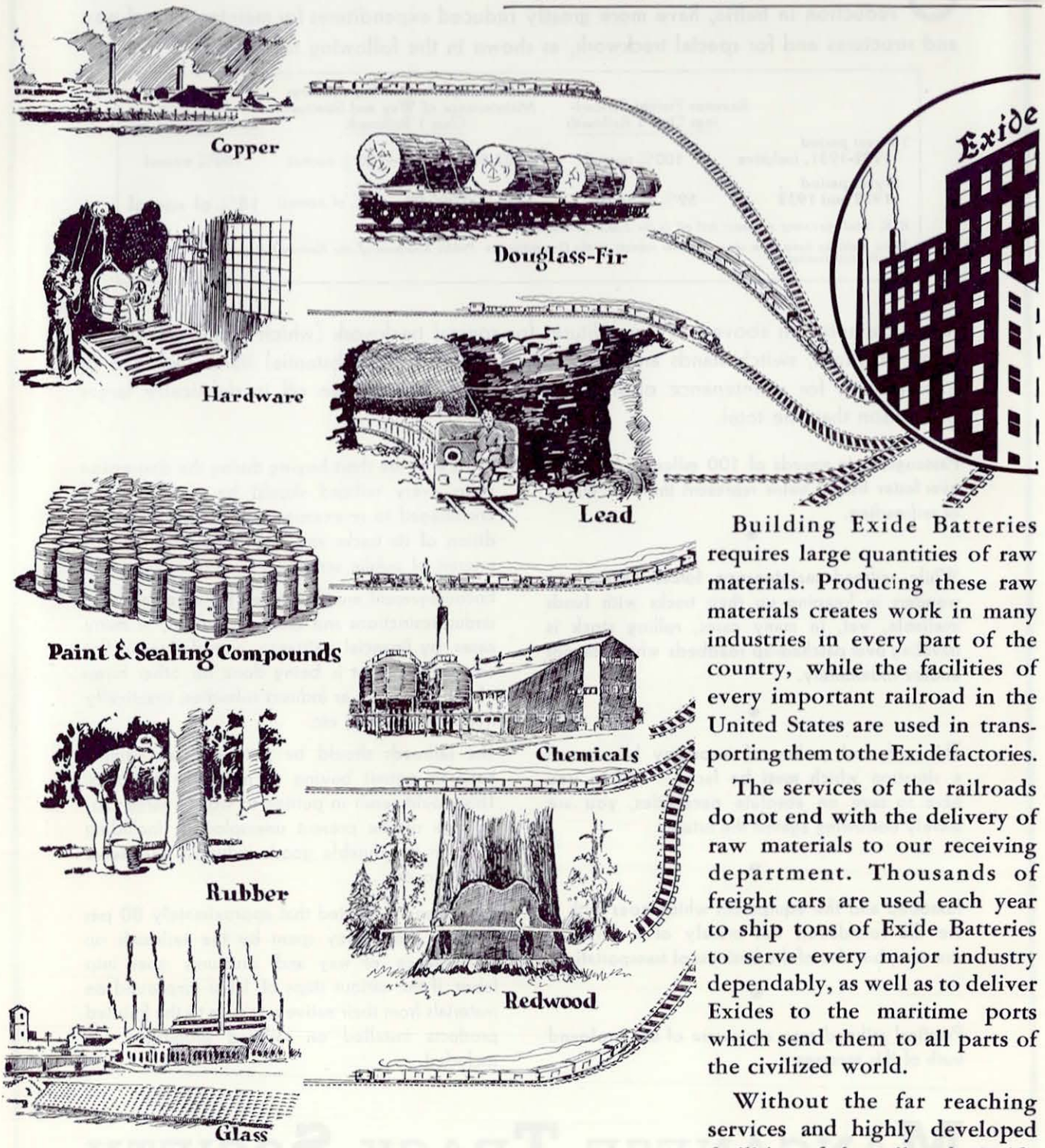
A National Organization

17 JOHN STREET - - - NEW YORK

Materials from the wide world

FAST, DEPENDABLE FREIGHT SERVICE

BUILDING AND DISTRIBUTING



Illustrating a few of the materials used in making Exide Batteries

Building Exide Batteries requires large quantities of raw materials. Producing these raw materials creates work in many industries in every part of the country, while the facilities of every important railroad in the United States are used in transporting them to the Exide factories.

The services of the railroads do not end with the delivery of raw materials to our receiving department. Thousands of freight cars are used each year to ship tons of Exide Batteries to serve every major industry dependably, as well as to deliver Exides to the maritime ports which send them to all parts of the civilized world.

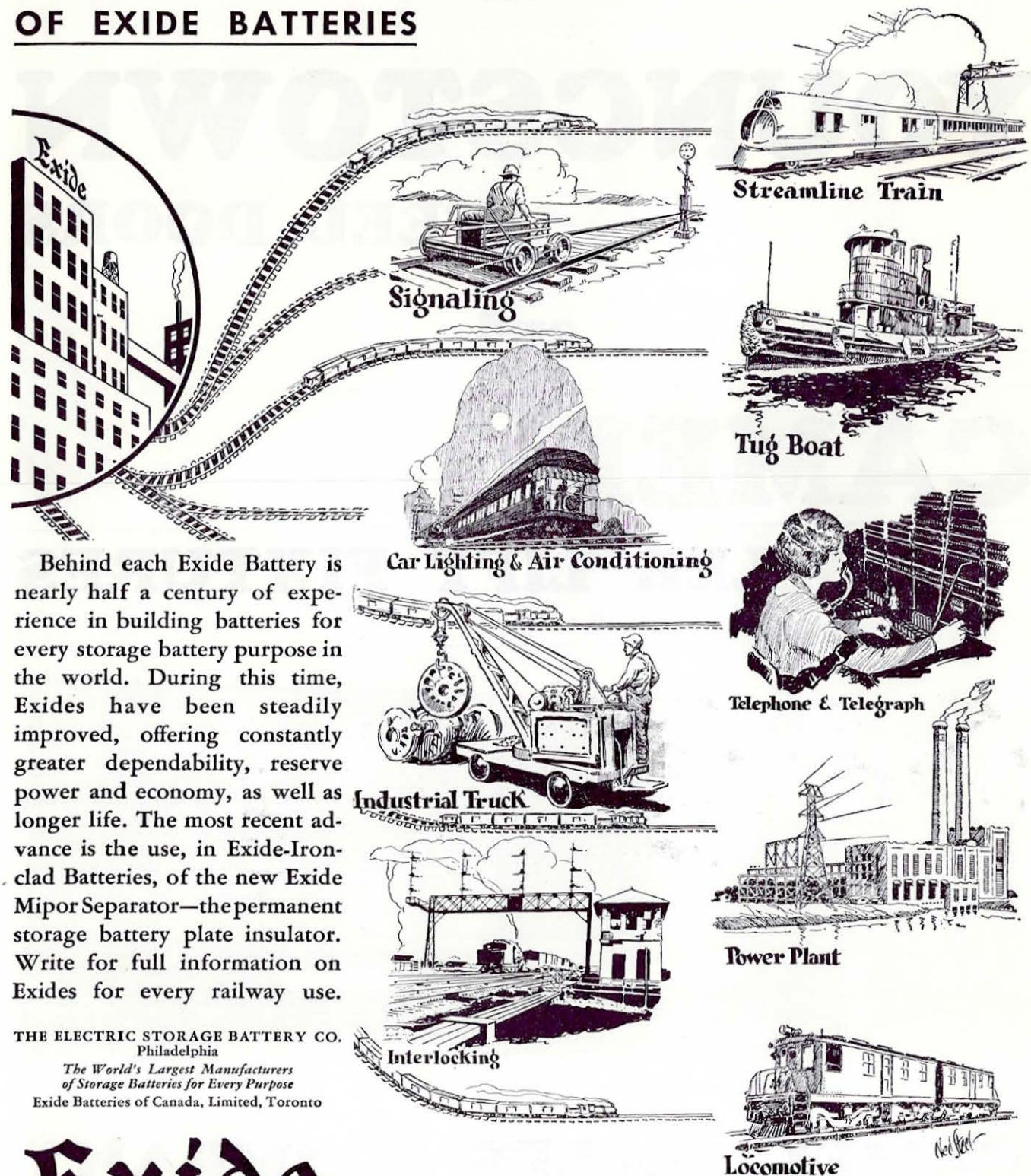
Without the far reaching services and highly developed facilities of the railroads, Exide Batteries could not be so readily distributed to every important industry in every corner of the country.

NRA CODE

for a world-wide product . . .

PLAYS AN IMPORTANT PART IN THE

OF EXIDE BATTERIES

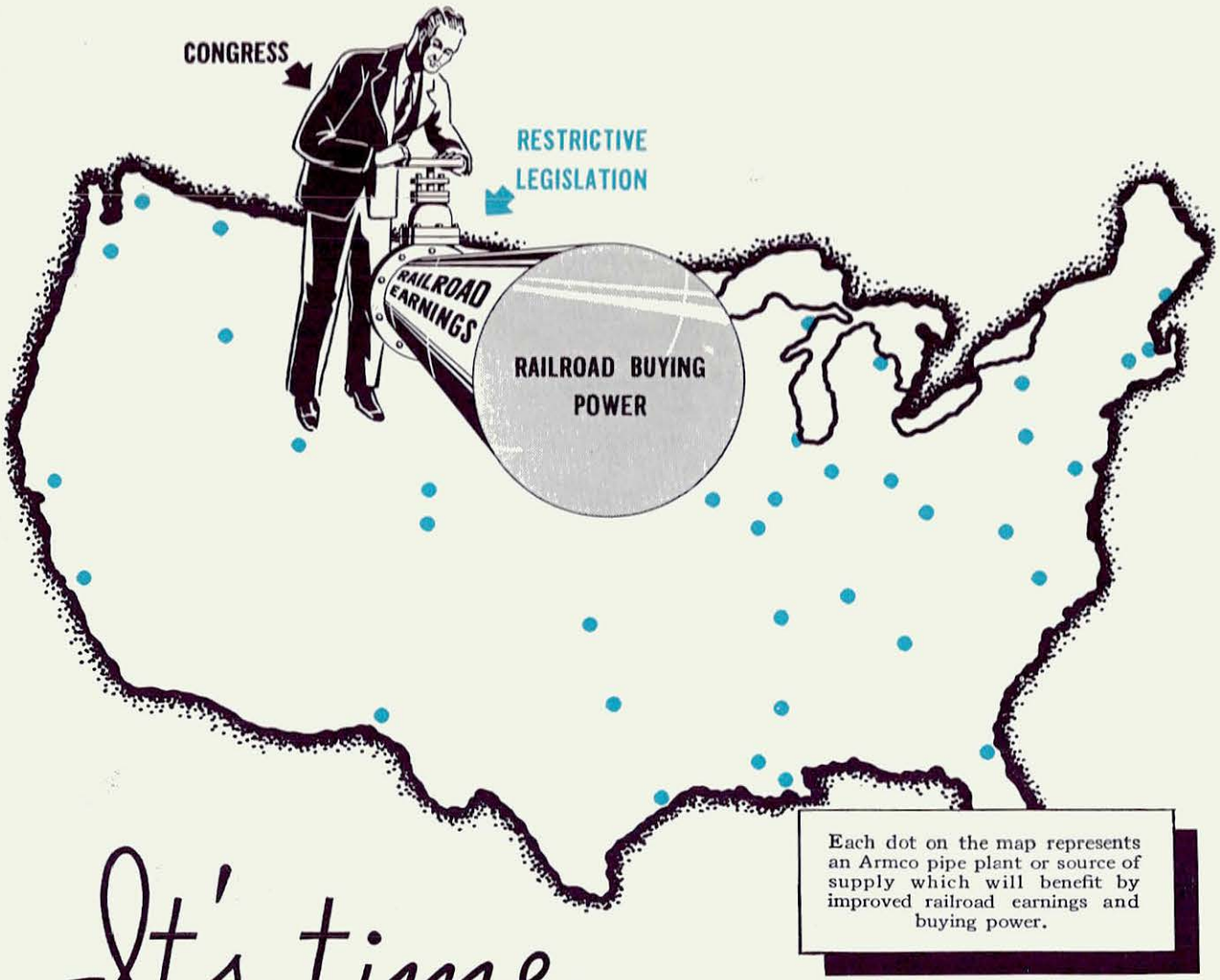


Behind each Exide Battery is nearly half a century of experience in building batteries for every storage battery purpose in the world. During this time, Exides have been steadily improved, offering constantly greater dependability, reserve power and economy, as well as longer life. The most recent advance is the use, in Exide-Ironclad Batteries, of the new Exide Mipor Separator—the permanent storage battery plate insulator. Write for full information on Exides for every railway use.

THE ELECTRIC STORAGE BATTERY CO.
Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Exide
BATTERIES
FOR EVERY RAILWAY PURPOSE

Illustrating a few of the many larger uses for Exide Batteries


CONGRESS
RESTRICTIVE LEGISLATION
RAILROAD EARNINGS
RAILROAD BUYING POWER
Each dot on the map represents an Armco pipe plant or source of supply which will benefit by improved railroad earnings and buying power.

It's time TO OPEN THE VALVE

WHAT if the water supply in your city were suddenly turned off—just to please a few people who have wells! Naturally, hundreds would suffer. Yet, isn't this same principle involved in our present national crisis? When you shut off railroad earnings, you automatically stop the normal flow of their buying power. As a result, thousands of people (especially in the durable goods industries) are deprived of work. In addition, the railroads themselves begin to deteriorate—because of inadequate maintenance.

We firmly believe that it's time to "open the valve" of restrictive legislation. Put the railroads back on an equal basis with other modes of transportation. Give them a chance to build their own recovery. For in so doing, they will distribute the benefits of their tremendous buying power among the thousands who are still unemployed in industry.

ARMCO

INGOT IRON RAILWAY PRODUCTS COMPANY

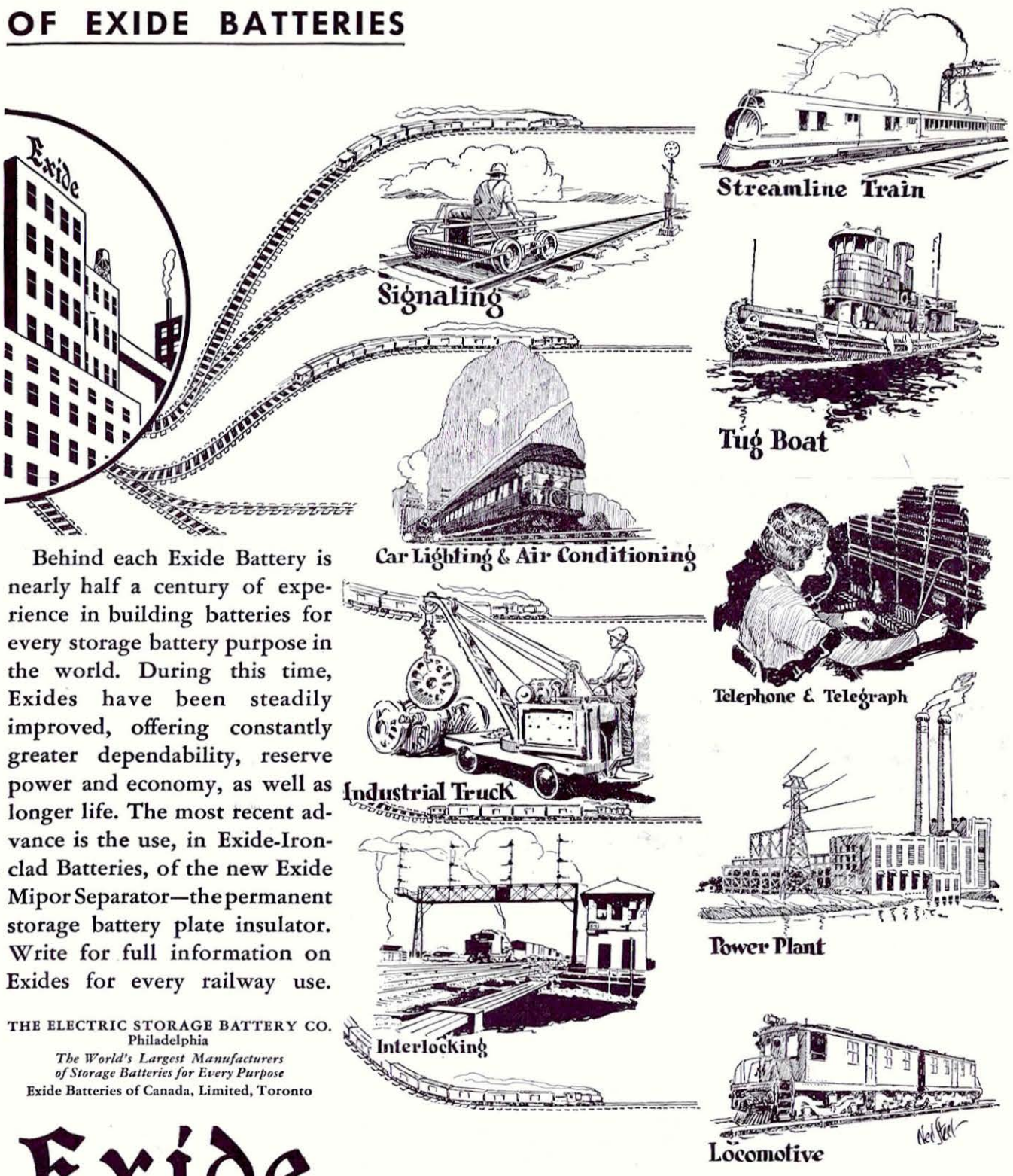
MEMBER OF THE ARMCO CULVERT MFRS. ASSOCIATION

DRAINAGE · WATER SUPPLY · METAL CRIBBING

for a world-wide product . . .

PLAYS AN IMPORTANT PART IN THE

OF EXIDE BATTERIES



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FOR EVERY RAILWAY PURPOSE

Illustrating a few of the many larger uses for Exide Batteries

EQUIP YOUR CARS

with

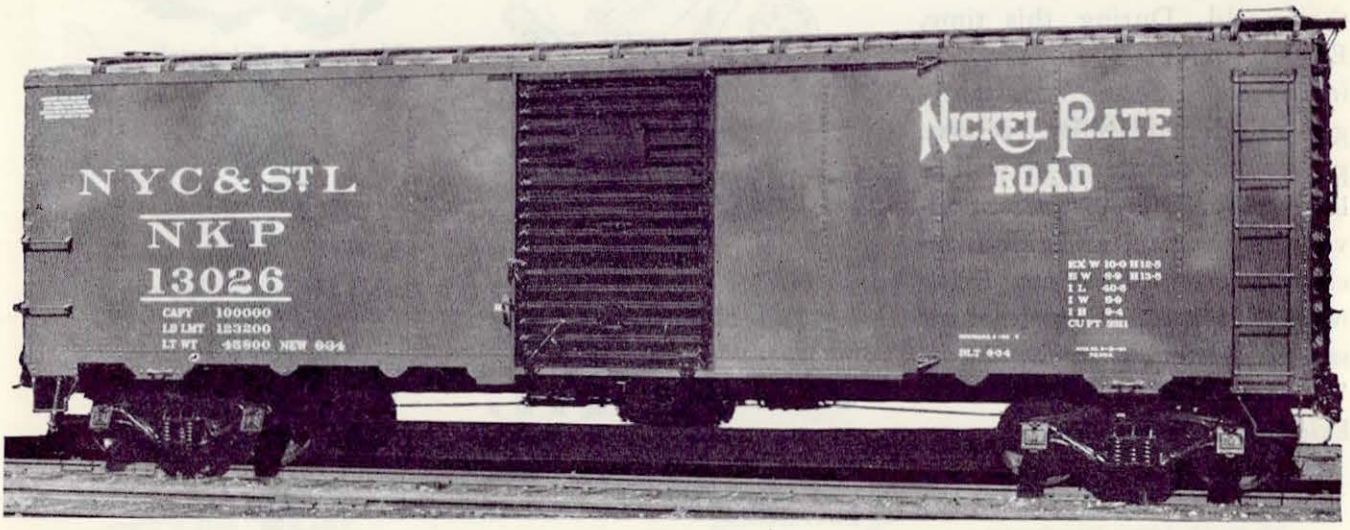
YOUNGSTOWN

STEEL DOORS

and

CAMEL

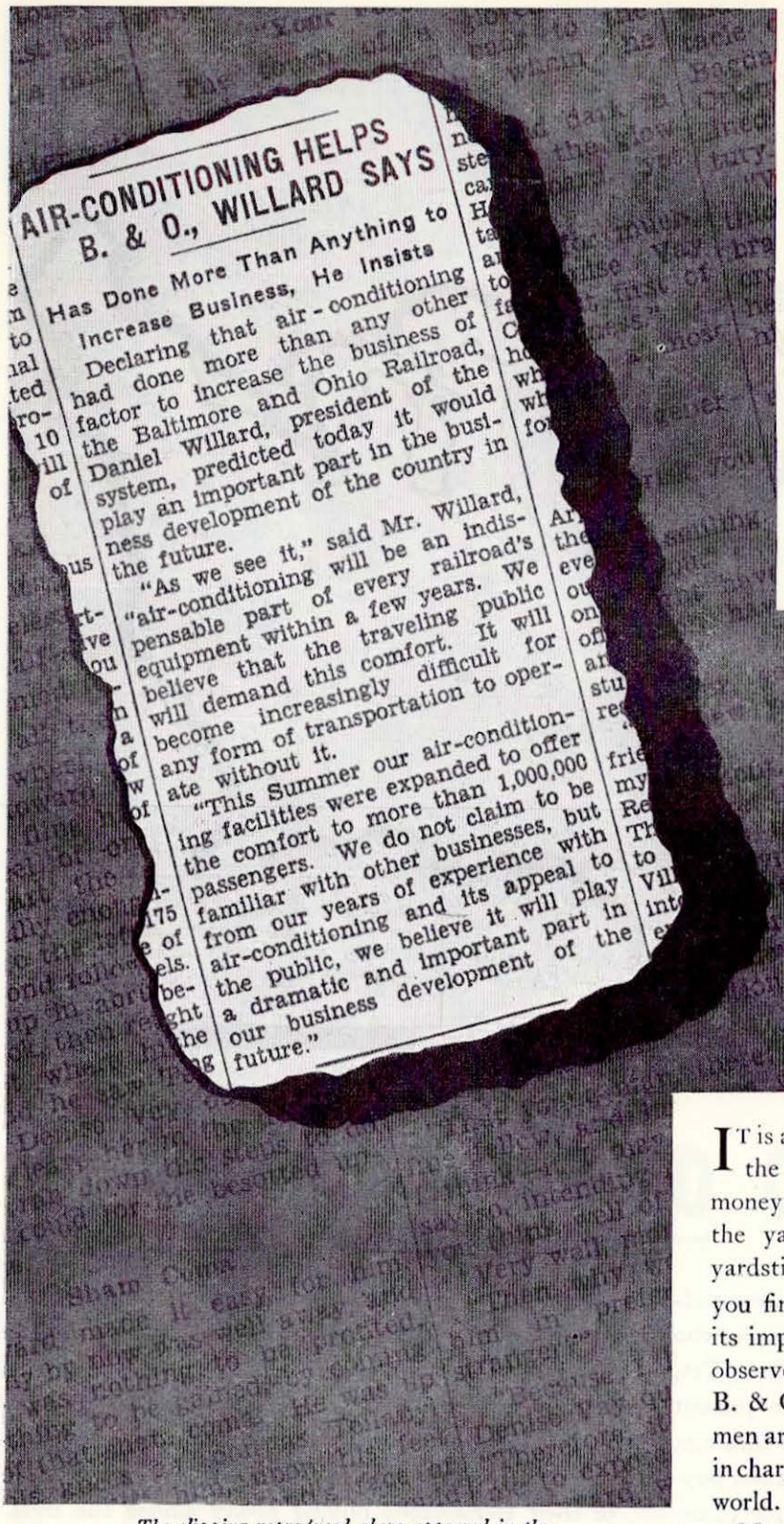
ROLLER LIFT FIXTURES



CAMEL SALES COMPANY

332 SO. MICHIGAN AVENUE

CHICAGO :: ILLINOIS



AIR-CONDITIONING HELPS B. & O., WILLARD SAYS

Has Done More Than Anything to Increase Business, He Insists

Declaring that air-conditioning had done more than any other factor to increase the business of the Baltimore and Ohio Railroad, Daniel Willard, president of the system, predicted today it would play an important part in the business development of the country in the future.

"As we see it," said Mr. Willard, "air-conditioning will be an indispensable part of every railroad's equipment within a few years. We believe that the traveling public will demand this comfort. It will become increasingly difficult for any form of transportation to operate without it.

"This Summer our air-conditioning facilities were expanded to offer the comfort to more than 1,000,000 passengers. We do not claim to be familiar with other businesses, but from our years of experience with air-conditioning and its appeal to the public, we believe it will play a dramatic and important part in our business development of the future."

The clipping reproduced above appeared in the Philadelphia Ledger of August 11, 1934.

. . . and they are MECHANICALLY AIR-CONDITIONED CARS!

IT is a fact that Mr. Willard purchased the best type of air-conditioning that money could buy. He did not make money the yardstick of his investment. His yardstick was excellence. On his railroad you find no ice air-conditioning—with its imperfections of control. When you observe the bearing of the crews of the B. & O. trains, you realize that these men are sensible of the fact that they are in charge of some of the finest trains in the world. They have the right to be proud.

Mr. Willard was the first railroad man to recognize the importance of using "Freon" as a refrigerant in a railroad train.

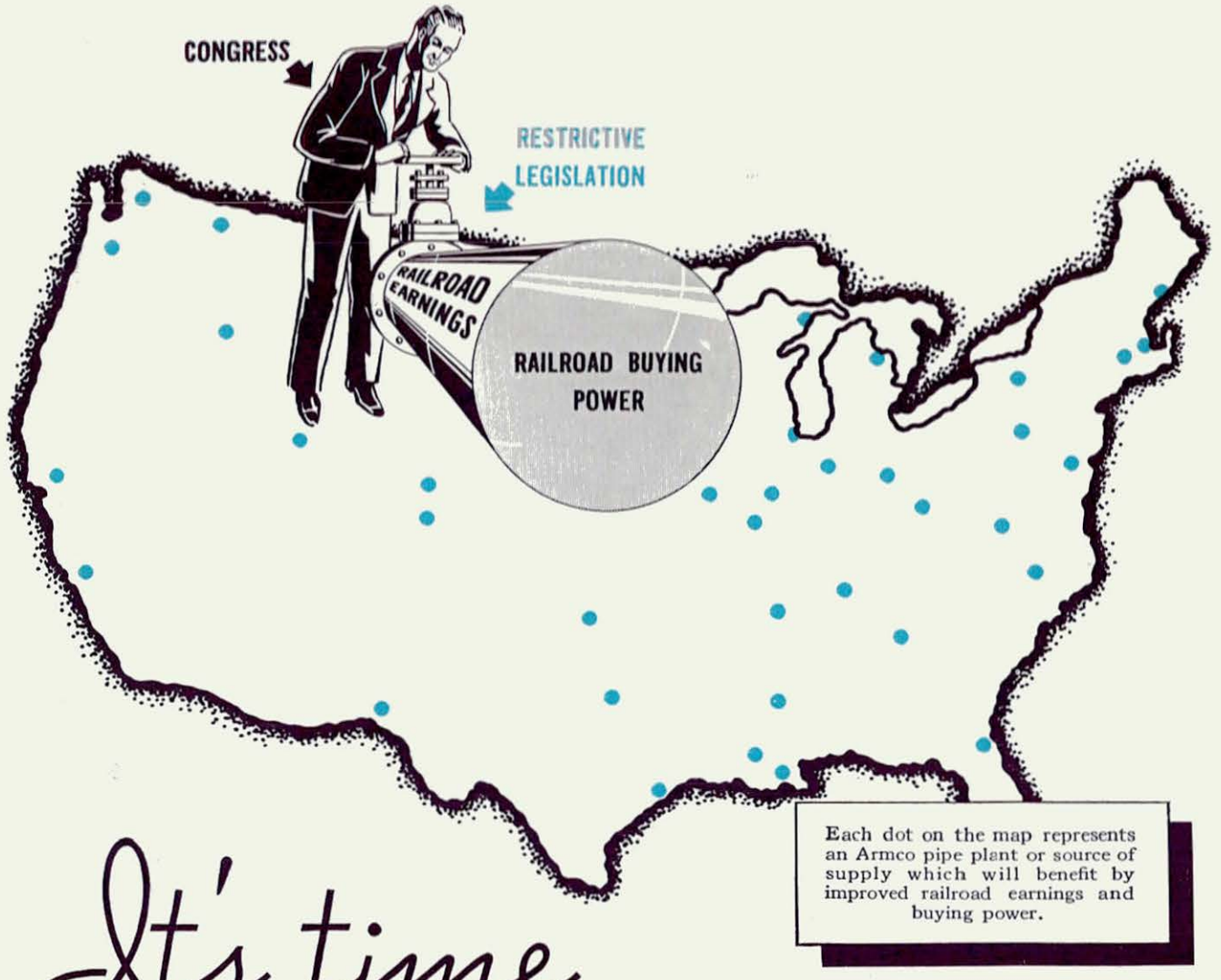
NOW OVER 99% OF THE MECHANICALLY AIR-CONDITIONED RAILROAD CARS ARE AIR-CONDITIONED USING FREON.

KINETIC FREON KINETIC

REG. U. S. PAT. OFF.

a safe refrigerant

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE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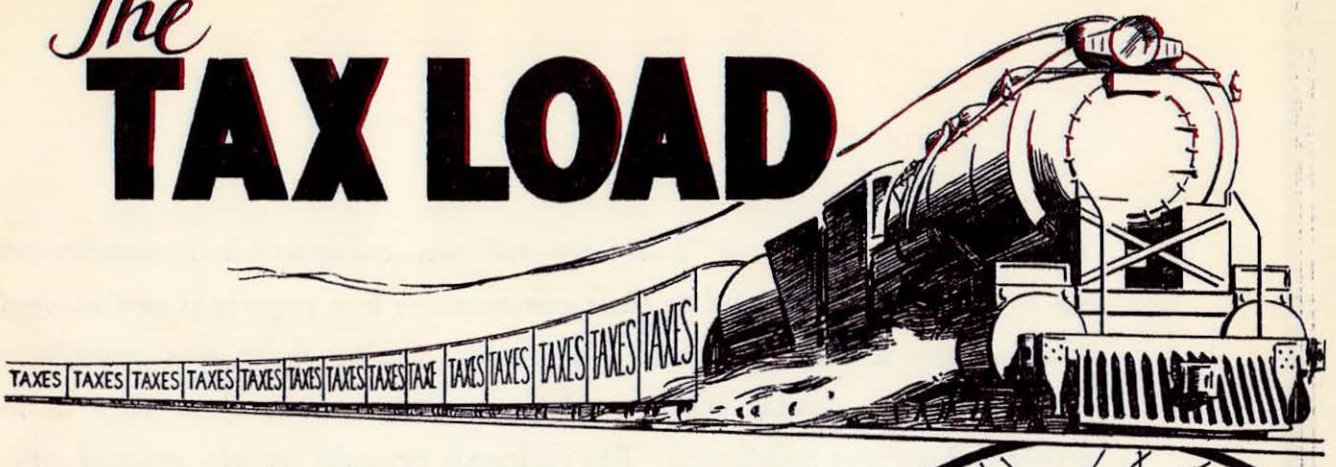
INGOT IRON RAILWAY PRODUCTS COMPANY

MEMBER OF THE ARMCO CULVERT MFRS. ASSOCIATION

ARMCO

DRAINAGE · WATER SUPPLY · METAL CRIBBING

The TAX LOAD



DURING 1933, the Kansas City Southern System lost in its operation, including taxes, more than 1¼ million dollars. The same year it paid almost a million dollars in taxes. If all the 1933 expenses of this railway were represented by a train of 100 cars, 14 cars would be loaded with taxes!

In the past 2½ years, the outgo of the Kansas City Southern was more than 3¼ million dollars in excess of its income. Its tax bill in that time totaled $2,379,899.40!

With this company footing a large part of the tax bill all along its line, few people in the territory realize how much their personal welfare and the welfare of their community depends upon the Kansas City Southern.

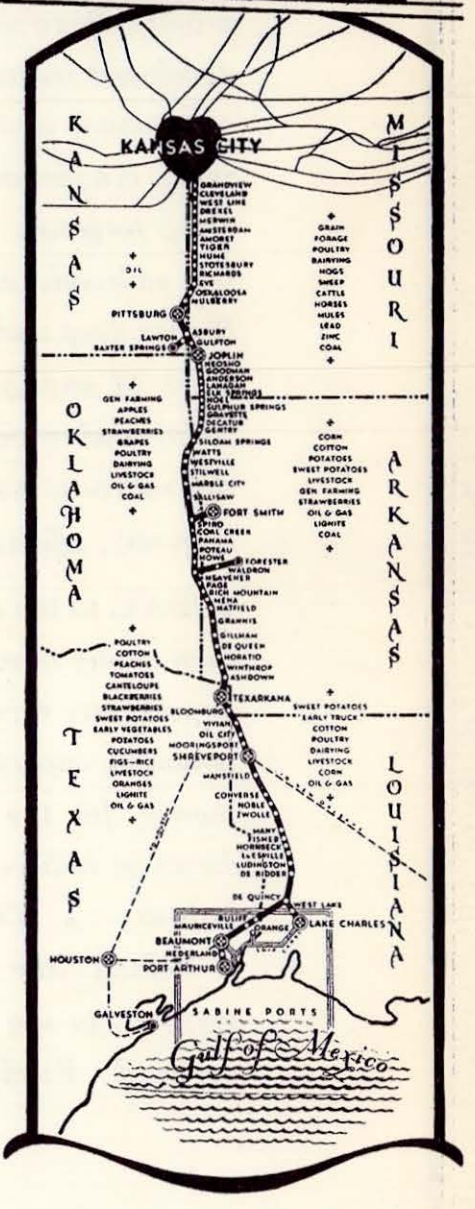
Aside from the support it gives through payrolls and purchases, this company is the mainstay of schools in the territory it serves. Jack and Jill go up the hill to school in many districts only because of the prompt payment of taxes by the Kansas City Southern. The percentage of total taxes it pays in the various school districts is startling. In a number of places it is more than 50%, and the figures range upward to 82%. Nothing is more important than our schools, but how can they continue to remain open if this railroad's support can no longer be depended upon, and how can this railway continue as the largest contributor to public education while operating at a loss?

Public highways, too, eat deeper and deeper into the insufficient revenues of the Kansas City Southern, not only because of the increasing volume of automotive traffic, which takes revenue from the railroad, but also because the railroad must help finance competition against itself by paying taxes for the construction and maintenance of roads. In one road district, last year, this railway paid 61% of the road tax. In two other districts it paid 50% of this tax.

The abandonment of railroad mileage is growing, and *every mile* abandoned throws an added burden of from $1,000 to $1,600 per year upon the people. In the six states traversed by the Kansas City Southern—Missouri, Kansas, Arkansas, Oklahoma, Louisiana and Texas—more than 1,500 miles of rail line has been abandoned or authorized to be abandoned in the past 3½ years because it was no longer profitable, account truck, bus and private automobile competition. From $1,500,000 to $2,400,000 per year formerly paid by the railroads will now have to be paid by the people.

To you who live and work and are interested in the territory served by the Kansas City Southern we present the facts. This railway means too much to you to permit its rails to rust. Yet rust they will unless profitable operation is assured.

Think it over!



KANSAS CITY SOUTHERN

STRAIGHT AS THE CROW FLIES

AMERICAN CAR AND FOUNDRY COMPANY

TWO YEARS *ago we said "There are still men among us who remember well the coming of the railroad to their community; how eagerly it was awaited; how heartily it was welcomed. For in its coming there was promise of prosperity, of a longer reach in the search for markets. • And in the promise there was fulfillment. The railroads brought people, created cities, developed industries, opened wide areas to cultivation, tapped new sources of national wealth. Where this country would be today, without the railroads, is a picture that only the man of unlimited imagination could paint. • Long forgotten are these services of development, the opportunities which the railroads created for nearly every man and for every community. Buried deep under years of restrictive legislation and control are these earlier years of energy and initiative. And though stripped of many means of creative advancement by burdensome taxation and unrestricted competition, the railroads have served and served well, yielding to no other agency in economy, efficiency and safety in the transport of people and goods." • • •*

TODAY, *to the entire country the railroads have an importance even greater than at any time in the past. Not alone for their contribution of service and opportunity through prompt transport, but perhaps even more through their potential capacity for putting into circulation a tremendous amount of money, for the creation of a great volume of employment, and for the direct or indirect stimulation of almost every element of the durable goods industry. • That the railroad may accomplish these things only one thing is lacking—the sound promise of a free and fair opportunity to increase earnings to the point where obsolete and uneconomic equipment can be replaced. Roadbeds and bridges improved to tomorrow's requirements.*

Those new standards of operating efficiency and economy, which we all know to be already available, grasped with confidence. • *Sound and discreet management is well aware of all this, and in addition perceives two factors indispensable to its solution. First, the requisite capital—now available on fair terms. And second, confidence. Confidence of continued earnings sufficient to amortize new liabilities. Confidence that future legislative and administrative action will ease burdens and restrictions under which the railroads have too long labored.* • *For many years this company has supplied the railroads with all manner of equipment, and rolling stock of every kind—save only locomotives. Today we offer equipment far superior to that generally in use, equipment which can be operated at a great proportionate saving.* • *For one railroad we are now building two eight-car, heavy-duty express trains weighing approximately* one-half *as much as the trains they will replace—and other equally advanced equipment is available.* • *Once place the railroads in a position where they can safely replace obsolete and uneconomic equipment, and their released new purchasing power will surge forward, the very spearhead of our nation's drive toward business recovery.*

President.

AMERICAN CAR AND FOUNDRY COMPANY

THE RAIL JOINT COMPANY
STANDARD AND COMPROMISE JOINTS
INSULATED JOINTS, FIBRE INSULATION
THE P. & M. COMPANY
RAIL ANCHORS
WOODINGS-VERONA TOOL WORKS
TRACK TOOLS SPRING WASHERS
MAGNETIC SIGNAL COMPANY
HIGHWAY CROSSING SIGNALS
NORDBERG MANUFACTURING CO.
MECHANICAL ADZERS, GRINDERS, SPIKE PULLERS AND POWER WRENCHES
THE McKAY COMPANY
RAILROAD CHAIN FOR ALL PURPOSES

RALPH W. PAYNE

METROPOLITAN BANK BUILDING
TELEPHONE NATIONAL-3530
613 FIFTEENTH STREET, N. W.
WASHINGTON, D. C.

THE THOMSON RAIL CORPORATION
HEADFREE RAIL
FAIRMONT RAILWAY MOTORS, INC.
RAILWAY MOTOR CARS, PUSH CARS, DISCERS, WEED BURNERS AND MOWERS, BALLAST CLEANERS, ETC.
AMERICAN HOIST & DERRICK CO.
DITCHERS, CRANES, SHOVELS, PILE DRIVERS, DRAGLINES, HOISTS, ETC.
RAMAPO AJAX CORPORATION
SWITCHSTANDS, GUARD RAILS AND CLAMPS, FROGS, SWITCHES AND TRACKWORK
STANLEY H. SMITH COMPANY
TELEWELD BUILT-UP RAIL ENDS
RAIL END HEAT TREATMENT

To: Members of the Congress
Members of the Interstate Commerce Commission
Members of the State Legislatures
Members of the State Transportation Commissions

Gentlemen:

The American people are faced with a vital decision - are we ready to discard our railways - their wages - taxes and contributions to the development of our country? Can we afford to lose our second largest industry - an industry which is the largest single taxpayer in the United States - one of the largest employers of labor - the largest single buyer of our iron and steel products - one of the largest consumers of our coal and forest products - an industry valued at 26 billion dollars whose bonds and stocks are the foundation of our financial and insurance institutions?

The railroads belong to the public - their problems are our problems - restrictions which paralyze this great industry must naturally react upon the physical, economical and social welfare of the entire nation. We cannot dispense with their efficient and dependable service - a service which gives us the most economical form of mass transportation - a service which proved to be one of the decisive factors during the world war - and is recognized to be one of the most important aids to national defense.

Every unbiased citizen will support the measures proposed by the President of our nation in a campaign speech on September 17, 1932 at Salt Lake City, Utah, which stressed the necessity for the protection of the railways, their employees and investors from unequal competition and unfavorable governmental policies.

The entire issue of this publication is devoted to the problems of the railroads and the disastrous effect of their curtailed expenditures upon American industry and labor. A brief review of the contents will show the necessity for immediate action - for legislation which will include all commercial carriers under efficient regulation of the Interstate Commerce Commission. Careful thought and prompt action are imperative. The entire nation will share in the benefits - the people await your verdict.

Ralph W. Payne

Fundamental Facts

1 National Recovery depends upon Recovery in the Durable Goods Industries.

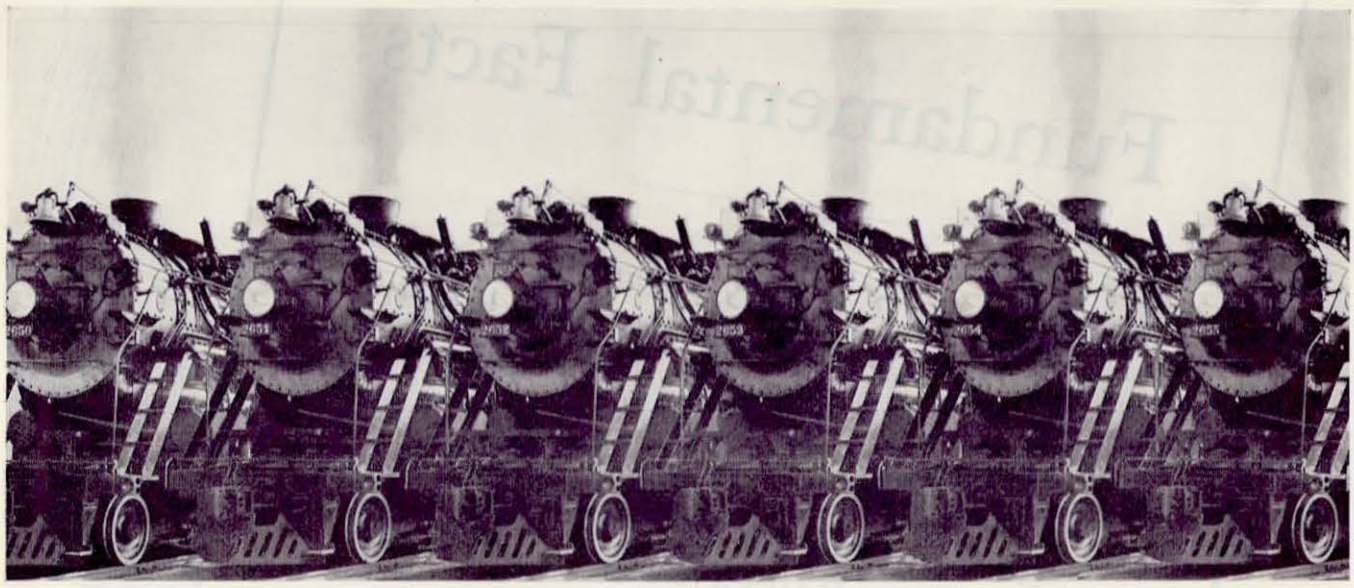
2 Recovery in the Durable Goods Industries depends upon Increased Purchases by Railways.

3 Increased purchases by Railways depend upon Increased Railway earnings.

4 Increased Railway Earnings depend upon the Elimination of Unfairness in the Competition between the Railways and Other Agencies of Transportation.

A Western Railroad, heartily endorsing this statement of facts, commends them to the attention of all legislative and administrative authorities.

New Motive Power



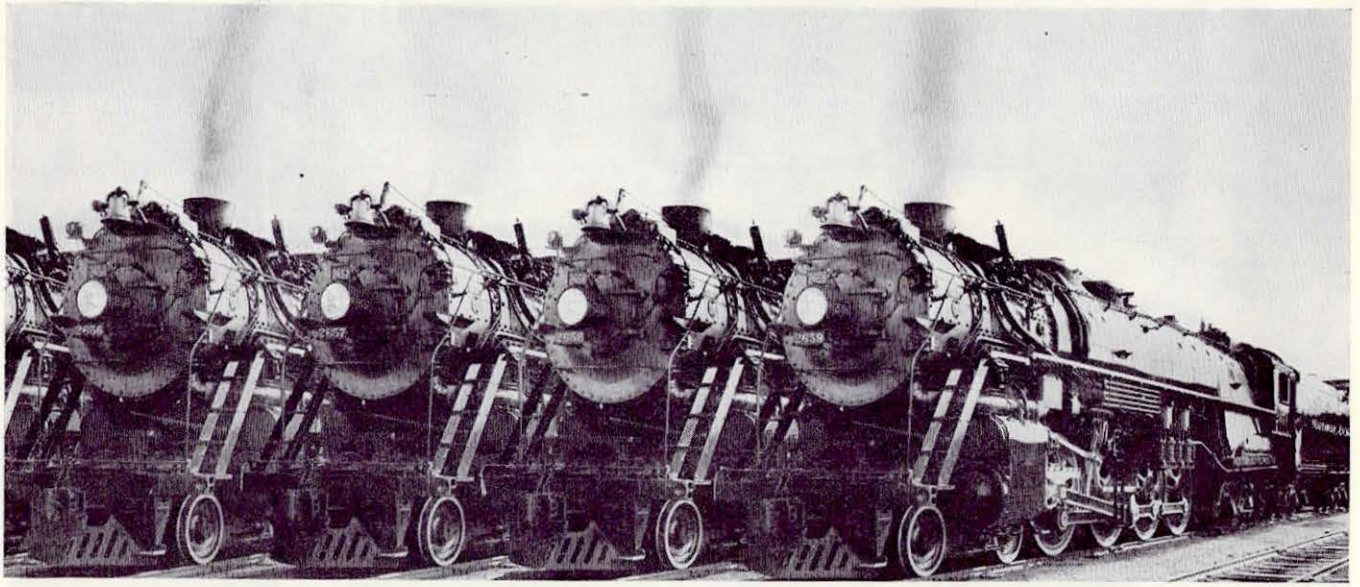
The Northern Pacific Railway has just received ten roller-bearing locomotives, purchased at a cost of $1,220,000 — new motive power for the North Coast Limited. This order, the first of any consequence in the steam locomotive industry in two years, marked the beginning of renewed buying activity in this field by other railroads. Decision to spend more than a million dollars for new locomotives and thousands additional for air-conditioning equipment for the North Coast Limited came in the fall of 1933 following a slight improvement in Northern Pacific earnings.

NORTHERN PACIFIC YELLOWSTONE PARK LINE 900

NORTHERN

First of the

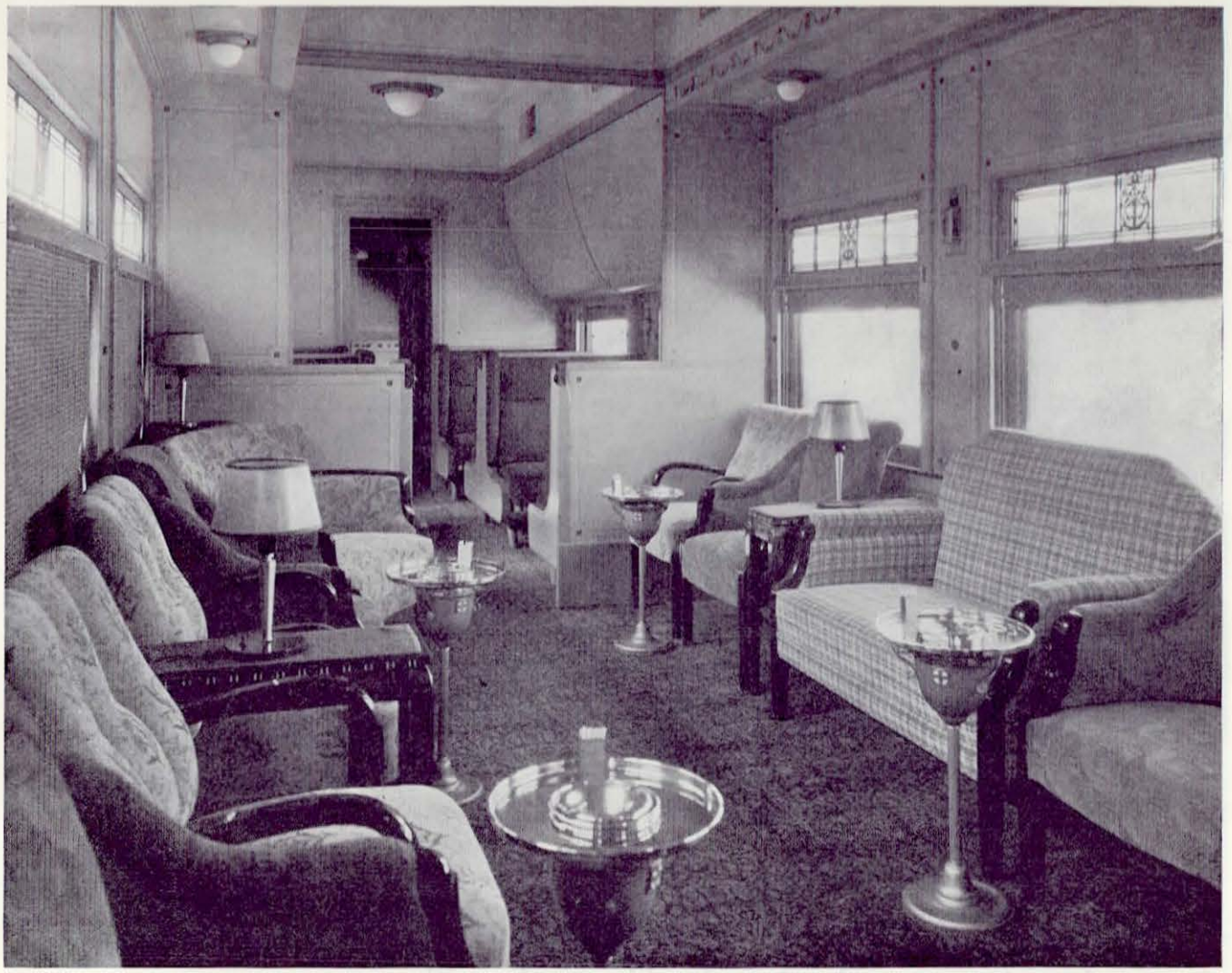
New Buying Power



New buying power, which would permit Northern Pacific to resume its normal policy of extensive purchases of equipment and other durable goods, with resultant wide-spread contribution to business improvement, can be attained only by means of greatly improved earnings. Despite increased efficiency in management and operation, this goal cannot be achieved without relief from unwarranted and burdensome regulation under which the railroads must meet unregulated and subsidized competition.

PACIFIC RAILWAY

Northern Transcontinentals



Atchison, Topeka & Santa Fe Club Car with modern equipment including Carrier-Safety Air Conditioning—Safety Electrical Equipment and Lighting Fixtures.

"WHICH AIR CONDITIONING SYSTEM SHOULD YOU ADOPT?"

"The reliable uninterrupted service and unsurpassable low maintenance cost of the Carrier-Safety Steam Ejector Air Conditioning Equipment has influenced the Santa Fe to place an initial and five repeat orders for a total of 168 car equipments.

"The experience over three years and on twenty railroad properties has definitely proven this system of air conditioning to be unexcelled.

"The character of service rendered points to ever increasing numbers of installations. You will be equally well satisfied with its performance."

THE SAFETY CAR HEATING & LIGHTING CO.

NEW YORK CHICAGO ST. LOUIS BOSTON
PHILADELPHIA PITTSBURGH SAN FRANCISCO MONTREAL

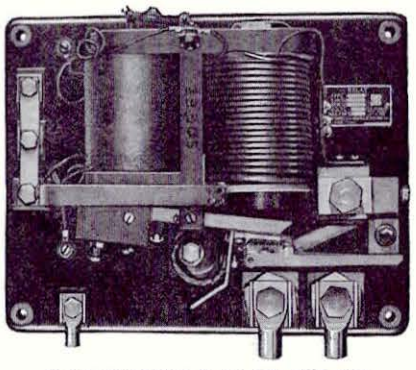
Why Experiment?

SAFETY Axle Driven Electric Equipment for Railway passenger cars is furnished in a wide variety of types and capacities to meet ever increasing demands for refined service.

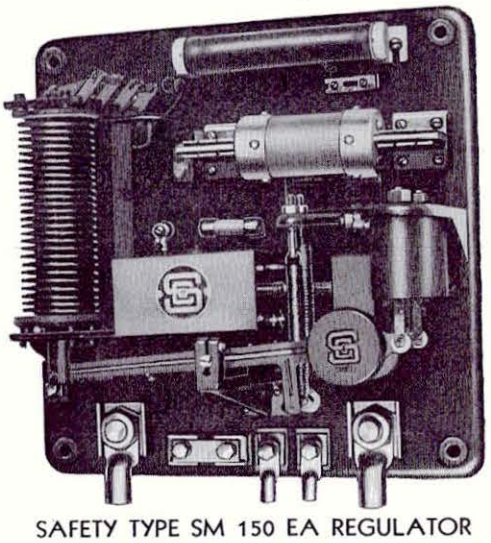
Generating equipment with capacity from 1 kw to 15 kw is in production, and higher capacities are available.

Your engineers and maintenance men have been familiar with Safety equipment for a long time and will recognize — as of old — the same sterling merits in the present more diversified line.

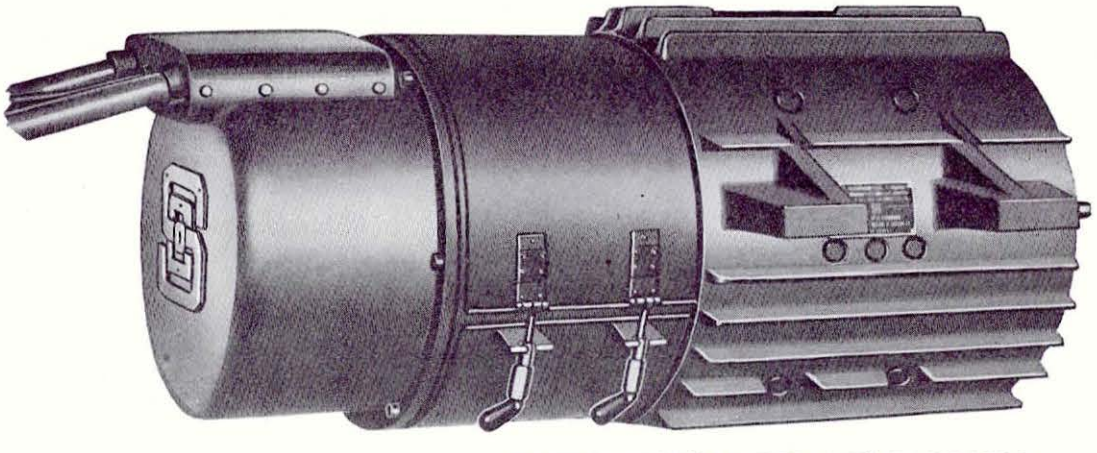
The Safety Company's many years experience supplying railroads with this type equipment assures you reliable apparatus backed by a responsible organization which maintains a specialized development and service laboratory for your needs.



SAFETY TYPE S 20 EA RELAY



SAFETY TYPE SM 150 EA REGULATOR



SAFETY 15 KW "UNDERFRAME" GENERATOR

THE SAFETY CAR HEATING & LIGHTING CO.

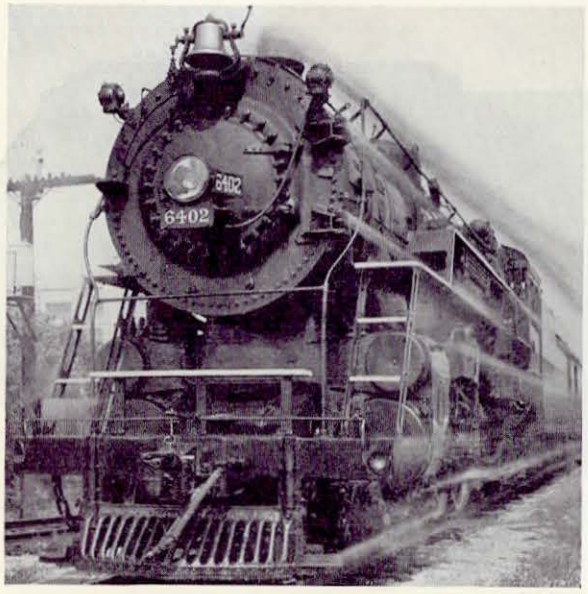
NEW YORK CHICAGO ST. LOUIS BOSTON
PHILADELPHIA PITTSBURGH SAN FRANCISCO MONTREAL

CHICAGO MILWAUKEE ST. PAUL AND PACIFIC

The MILWAU

The "OLYMPIAN" in the Cascades

Across four mountain ranges—the Rockies, Belts, Bitter Roots and Cascades—The Milwaukee Road is electrified. Giant electric motors pull the freight and passenger trains over 440 miles from Harlowton, Montana, to Avery, Idaho, and 216 miles from Othello, Washington, to Tacoma and Seattle.



Locomotive 6402 which, on July 20, 1934, established a new record for long distance sustained speed, averaging 92.07 miles per hour for 53.6 miles between Deerfield, Ill. and Lake, Wis., with a regular train. The entire 85-mile run, Chicago to Milwaukee, was made in 67 minutes and 35 seconds.

The first rail of the great system now known as The Milwaukee Road was laid in Wisconsin in 1850, when there were less than one hundred miles of railroad west of the Great Lakes and the lower Mississippi River.

Today this Railroad's 11,200 miles of road in twelve states between Indiana and the north Pacific Coast directly serve about one-third of the residents of those states.

Progressive always, the Milwaukee Road has been a pioneer in developing and perfecting ways to better serve shippers and travelers.

Outstanding among its achievements is the electrification of 656 miles of its main line over four mountain ranges, affording its patrons the world's longest continuous electrified ride.

This railroad was the first to apply roller bearings to complete, long-distance trains, fully equipping its Pioneer Limited trains between Chicago and Minnesota's Twin Cities, and its Olympian trains between Chicago and Seattle-Tacoma.

Recently the Milwaukee Road established 90-minute service for the 85-mile run between Chicago and Milwaukee, the fastest service in this country between important terminals.

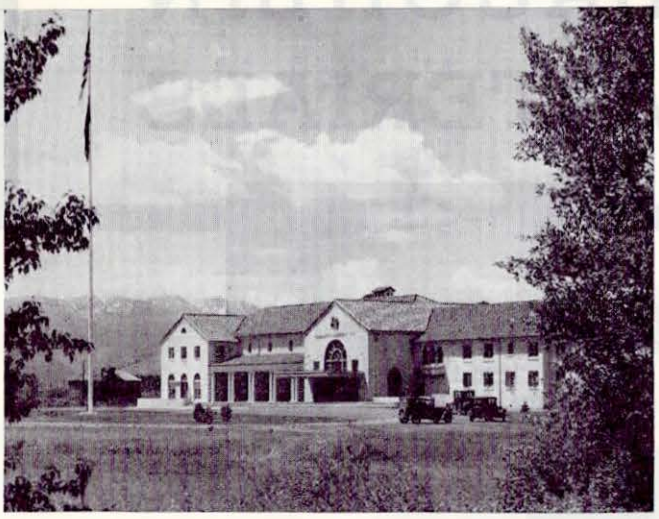
KEE ROAD

CHICAGO MILWAUKEE ST. PAUL AND PACIFIC

This system long has been famous for the excellence of its equipment. This year it has built fifty new type, light weight, welded coaches especially designed for the comfort and convenience of travelers, and has plans for other improvements to meet public demands.

Since last July the Milwaukee Road has held the world's record for sustained speed by steam power, having run a distance of 53.6 miles with a regular train at an average speed of 92 miles per hour.

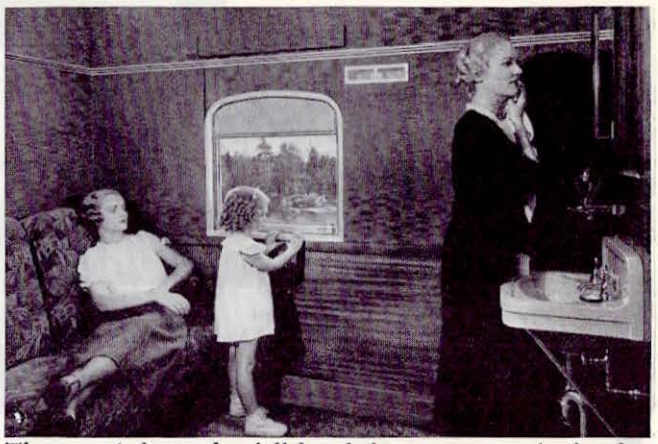
The Milwaukee Road is eager to continue its expenditures for the benefit of its patrons but is handicapped because of the depression and the inroads of highway and waterway agencies that are aided in obtaining business by the fact that they enjoy unfair competitive advantages in subsidies and in comparative freedom from regulation.



Gallatin Gateway Inn
The Milwaukee Road's palatial hotel at Gallatin Gateway entrance to Yellowstone National Park.

With revenues about half the volume of normal years, it has been necessary for the railroad to reduce employment and payrolls and purchases about in proportion. This has adversely affected the business houses patronized by rail employees in all communities served and has reduced employment in industries from which the railroad obtains its equipment, materials and supplies.

The Milwaukee Road has no quarrel with fair competition and it is hopeful that the consideration now being given the entire transportation situation by the government will develop a plan that will eliminate unfair advantages, thus aiding the railroads and all those directly and indirectly dependent upon the railroads for support.

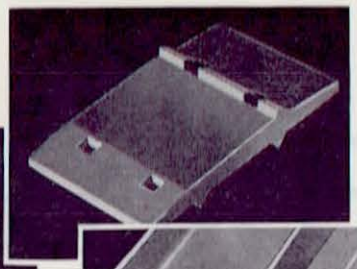


The women's lounge has full length davenport—seats for five; but as far as space is concerned five is not company nor ten a crowd. There is no type of car, regardless of travel cost, where ladies are provided for more thoughtfully.

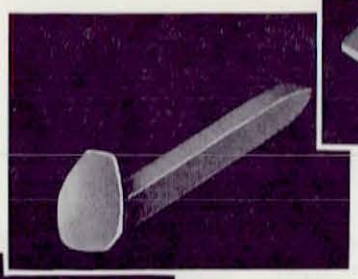
The overstuffed seats are wider than standard. By means of a lever in the arm of the chair the backs may be individually adjusted to accommodate the passenger in four different postures—from normal to semi-reclining position.

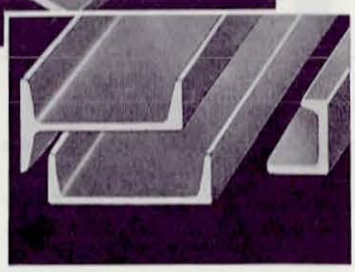
Convenience as well as comfort is provided in the men's room. Porcelain lavatory fixtures; hot and cold water; sanitary towels. Three overstuffed davenports seating ten.

Tie Plates
Hot and Cold Worked

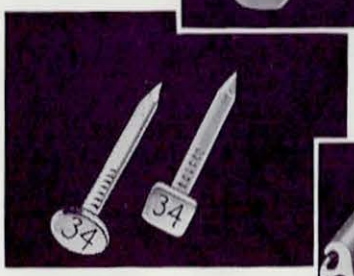


Track Spikes

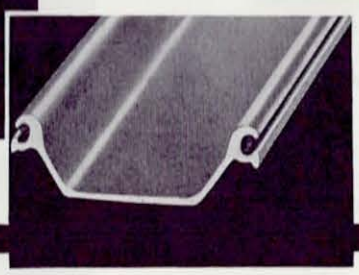




Center Sill Beams, Bulb Angles, Other Car Shapes and Plates

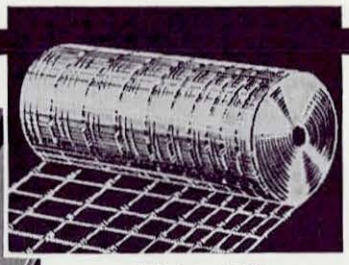


Galvanized
Tie Dating Nails

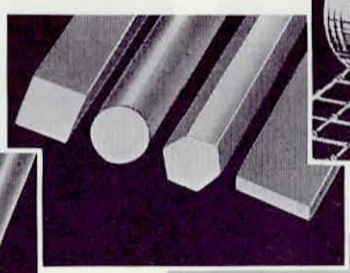


Steel Piling

JONES & LAUGHLIN RAILWAY MATERIALS



Cold Finished Steel



Right-of-Way Fence

TOTAL ANNUAL STEEL INGOT CAPACITY 3,660,000 TONS

Steel Pipe
Welded and Seamless
Black and Galvanized

Hot Rolled
Seamless Steel
Boiler Tubes

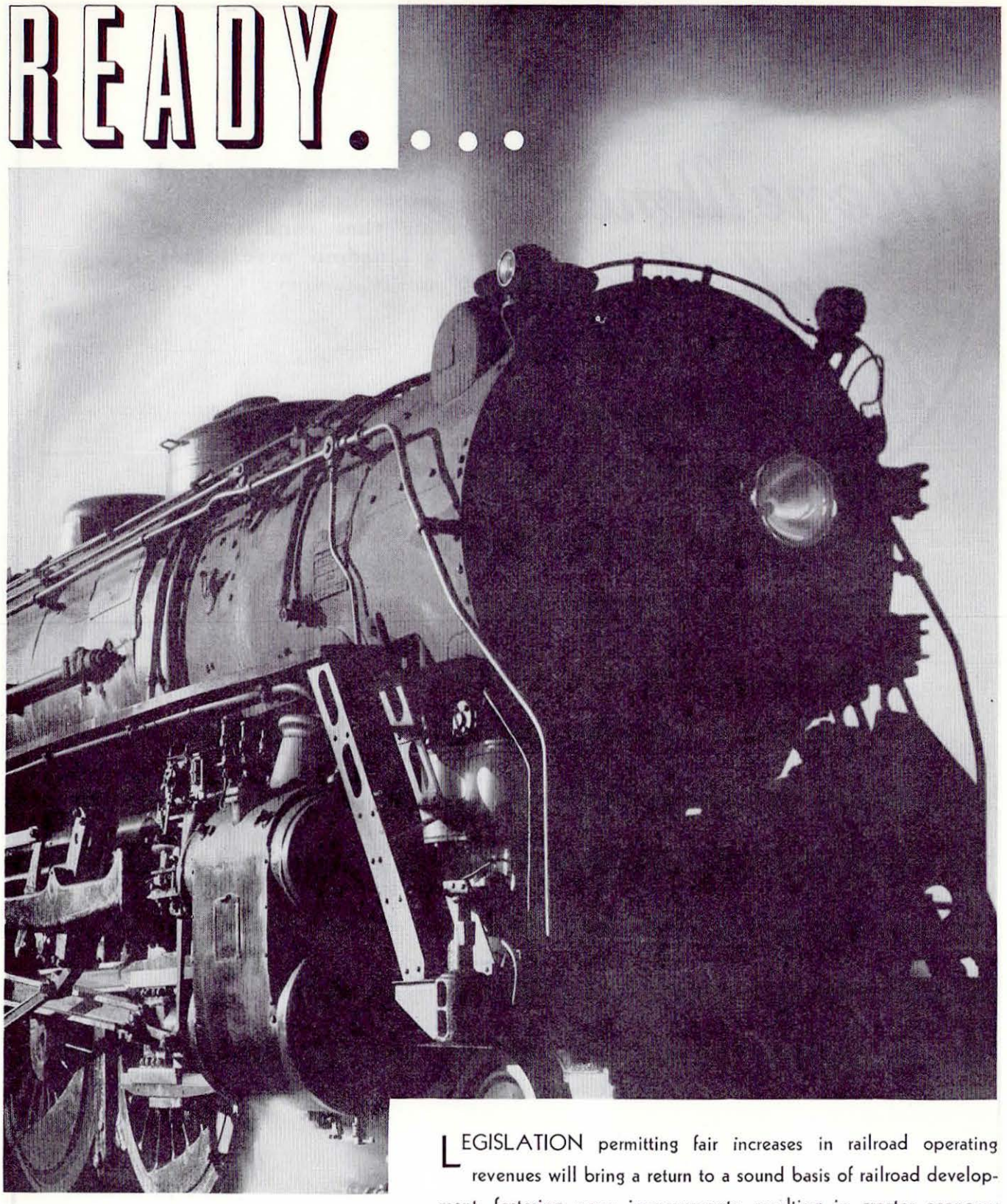
J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

READY. . . .



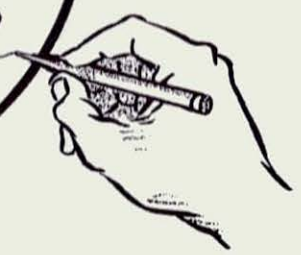
LEGISLATION permitting fair increases in railroad operating revenues will bring a return to a sound basis of railroad development, fostering many improvements, resulting in greater economy and a far-reaching stimulus to related heavy-goods industries.

THE PYLE-NATIONAL COMPANY

1334-58 North Kostner Avenue Chicago, Illinois

RAILWAY ELECTRICAL EQUIPMENT

Mene Mene Tekel Upharsin



Centuries ago a hand wrote on a wall a warning that conditions in a kingdom were highly unsatisfactory.

Railway Purchases

(Fuel, Material, Supplies)

1923	$1,738,703,000
1929	1,329,535,000
1930	1,038,500,000
1931	695,000,000
1932	445,000,000
1933	465,850,000

Today a mighty industry is writing figures which in their way are just as portentous as the famous handwriting on the wall.

RAILWAY SERVICE & SUPPLY COMPANY

Physical and Chemical Laboratories devoted to research in the lubrication and operation of railway journal bearings.

INDIANAPOLIS - INDIANA

UNLEASHING *Pent-up* POWER...

The Chesapeake and Ohio Railway Company shows its confidence in the future by increasing the dumping capacity of this great coal dock 50% by adding a third Industrial Brownhoist Dumper.

The large view shows two modern Brownhoist Car Dumpers at work on the Chesapeake and Ohio Presque Isle dock. Each dumper handles cars holding up to 120 tons of coal.

The check-mark in the aerial view inset shows the site of the third car dumper now being built.

BROWNHOIST DUMPERS

INDUSTRIAL BROWNHOIST CORPORATION
BAY CITY, MICHIGAN

FAIR WEATHER Highway Operators *Are Undermining* DEPENDABLE All-Year Round All-Weather Rail Transportation

BANGOR AND AROOSTOOK RAILROAD

"The TRAINS MUST GO THROUGH" AND THEY DID ——

(Extract from Bangor Daily News, July 2, 1934)

BENEATH this simple statement lies a story of dogged courage, loyal devotion to its patrons and communities unparalleled in modern railroad history — the Bangor and Aroostook's bitter battle of 1933–34. Through all the winter, the severest ever known in New England, trains of the Bangor and Aroostook Railroad kept running.

The great empire of Northern Maine, buried in accumulated snowfalls of 11-feet and snowdrifts much greater, cut by continued sharp penetrating winds, would have been threatened with actual hunger had the railroad failed. But the trains ran. This snow-bound territory was being serviced by a railroad whose fighting spirit was unending, with vigilance that never slept, and a determination that never quits.

Despite the snow, ice and sub-zero temperatures of 30-40 and 50 degrees below, the great perishable crop of potatoes, 17,943 carloads to be exact, were sent through the mountainous snowdrifts during December, January, February and March.

It would have been easier, and profitable too, to have suspended operation in those bitter months. But the Bangor and Aroostook, from top to bottom, is made of sterner stuff. The motto "The trains must go through" was put to the test. Two thousand section men and snow shovelers costing $105,000 for three months, day after day, week after week, fought diligently with every ounce of fighting strength there was in them. And they won. The trains did go through, and Northern Maine received its daily service.

Now, where were the truck operators all this time? What did they do? How much snow did they shovel? How much did they spend to keep the potatoes and other necessities moving?

So we ask you in all fairness — is it right to harass and undermine dependable all-year-round, all-weather rail service by fair-weather, unregulated trucks whose very existence is made possible largely by the tax-money paid in by the railroads?

The American principle of fair play demands that the trucks be placed under exactly the same regulation as the railroads. Why should the railroads be crippled by over-regulation, unequal treatment and over-taxation? And then to make matters still worse, why should the railroads' tax-money be used to build roads and to subsidize unfair truck competition?

With all forms of transportation treated alike the railroads can work out their own destiny and continue to render a reliable service — so vital to the well-being of the entire nation.

BANGOR AND AROOSTOOK

SAVE MONEY--HOW?

The principal problem of the Railroads today is to save money wherever possible.

The American Railroad Association has given an opinion that some kind of cushioning devices—call them friction springs, snubbers, stabilizers, or anything else you want to—should be used under the bolsters and in the trucks.

In buying such truck springs, if you pay the highest prices, you are not complying with your own best interests.

THE FROST FRICTION TRUCK SPRING

is the oldest friction or snubbing device on the market, and its seven years service has proven that it

SAVES MONEY ON THE ORIGINAL COST:
It is the lowest priced of any device that does the work.

SAVES MONEY ON MAINTENANCE:
It has only two working parts.

SAVES MONEY ON REPLACEMENTS:
The breakage is negligible—it never wears out.

SAVES MONEY ON DESTROYED LADING:
A smooth ride guarantees this.

SAVES MONEY ON CAR REPAIRS:
The truck springs are the heart of the car.

SAVES MONEY ON HOT-BOX DAMAGES AND DELAYS:
Keeping the bolster and axles in line.

SAVES MONEY ON DAMAGES BY DERAILMENT:
This item is increasing every year due to fast service.

SAVES MONEY ON BROKEN ORDINARY SPRINGS:
This economy will pay for the Friction Springs every year.

These items are all based upon service conditions and service is the one and only test to determine real merit. We have 30,000 cars equipped most of them for five years and still running. This is a better recommendation than any laboratory or special run test however complicated.

THE FROST RAILWAY SUPPLY CO.,

Union Guardian Building

DETROIT

Normal Railroad Buying Means

JOBS FOR MILLIONS

To wage earners in virtually every line of industrial activity, railroad buying is a matter of vital concern. When railroad buying is in normal volume, they have jobs. When railroad buying is cut off, they have part-time work at best, if not actual unemployment.

In 1929, a year of normal railway buying, no less than 2,000,000 workers were employed either full time or part time, in meeting the manifold needs of the railways for raw materials and finished products of all kinds.

In that one year, railroad buying provided employment for

100,000 workers in the steel industry

75,000 workers in the machinery industry

150,000 workers in the lumber industry

115,000 workers in the coal mines

Over 500,000 salaried employees in all industries, employees of railroad contractors and others

1,000,000 part-time workers in industries supplying to the railways.

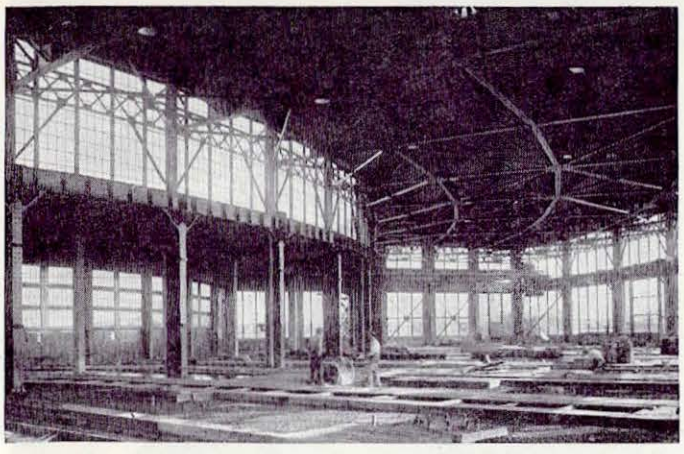
These two million workers—now largely unemployed—await the renewed railway buying which will follow railway recovery. They may not know the reason for their present predicament—that the railways have spent over four billion dollars less during the last five years than they did in the five years ending in 1929. They only know the effect—no jobs.

These workers and the women and children dependent upon them are the ones who will benefit most from railway recovery and increased railway buying power. Their needs must be considered.

Legislative fair play for the railways will mean railway recovery. Railway recovery will mean increased railway buying. Increased railway buying will mean jobs for millions.

— A Western Railroad

THE RAILROADS WILL BUY *when/if*



their purchasing power is restored

★ The railroads are the country's largest purchasers of durable goods. Any legislation that will increase their purchasing power will in turn add to the recovery of these vital industries.

The purchases of a single railroad, for example, dropped from $39,400,000 in 1929 to $10,800,000 in 1932. This represents a reduction of nearly 75% in the purchase of durable goods and a similar reduction in the employment of workmen where the greatest unemployment exists today. Yet, with the somewhat increased earnings which this road enjoyed during 1933 its purchases were stepped up by nearly a million dollars. *Evidence that increased purchases by all railroads will quickly follow increased earnings.*

The far-reaching effect of the purchase of durable goods by the railroads is a subject that concerns the law makers as well as the whole fabric of industry. Few realize how much in man hours and wages is involved in the construction and equipment of a single railroad building or addition. The fact is: labor and wages do not end until every item purchased reaches the raw material stage. The approximate figures are: * *In the construction and equipment of a new railroad building which involves an actual cost of $450,000, the amount paid in wages to durable goods and construction workmen is $402,280 with a total in man hours of 805,310.*

Railroad economies will not only be found in new rolling stock and much needed maintenance but in the modernization and new construction of railway buildings and equipment. It is operations such as these, creating additional wages and man hours that will give a tremendous impetus to recovery . . . *the Railroads will buy when/if their purchasing power is restored.*

* Austin will gladly send you a pamphlet which shows the far-reaching effect of such a construction job . . . charts the entire operation in terms of wages and man hours. Write, wire or phone the nearest Austin office.

THE AUSTIN COMPANY

ENGINEERS AND BUILDERS
Offices in Principal Cities

THE AUSTIN METHOD

National Headquarters:
16112 Euclid Avenue, Cleveland, Ohio

There has been *no revolution*

Why
AMCRECO PRODUCTS
have maximum quality

1. Carefully selected timber.
2. Incipient decay avoided.
3. Framing before treatment.
4. Preservative of known value.
5. Adequate treatment.
6. Treatment accurately timed to proper seasoning.
7. Unequalled facilities and personnel of the leading producer.

While radical changes may be needed in other matters, wood preservation is not confronted with such problems. The use of standard preservatives continues to give excellent results in long life and economy. Revolutions may be worked out over night in some lines, but in wood preservation worth while improvements cannot come suddenly because facts are only developed through long periods of service. Experimentation continues but it is neither urgent nor desirable to adopt wholesale changes in this field.

NRA MEMBER U.S. WE DO OUR PART

AMERICAN CREOSOTING COMPANY
INCORPORATED

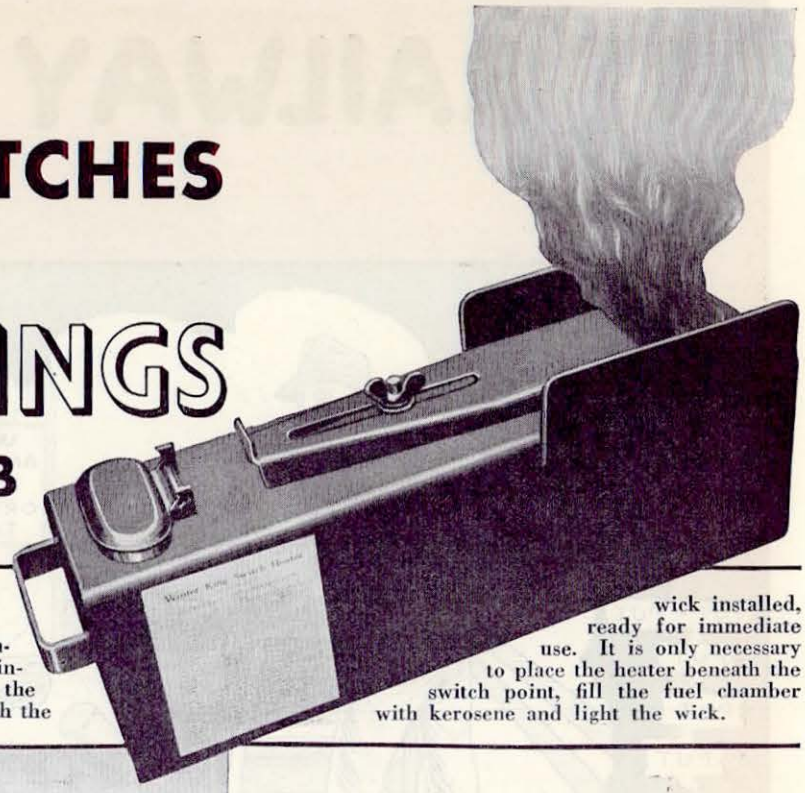
COLONIAL CREOSOTING COMPANY INCORPORATED

AMCRECO LOWRY PROCESS CREOSOTED WOOD

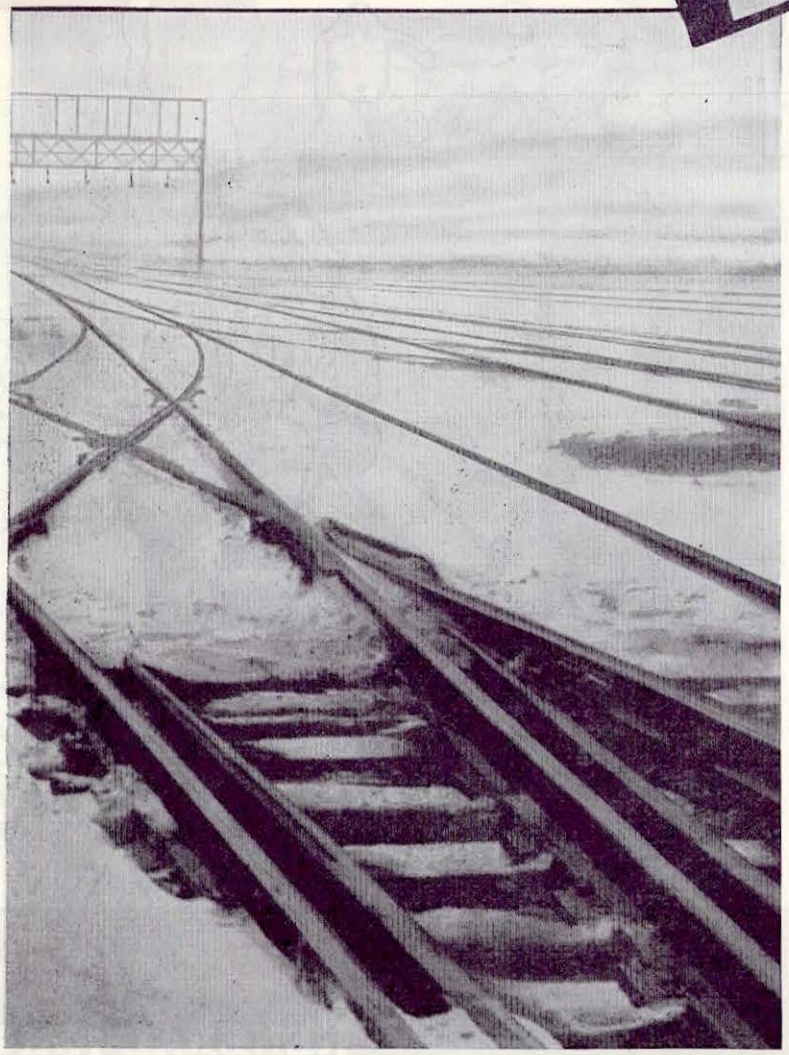
GEORGIA CREOSOTING COMPANY INCORPORATED

LOUISVILLE — KENTUCKY

NO FROZEN SWITCHES WITH WINTER KINGS ON THE JOB



The Winter King Switch Heater is made of copper-bearing steel. The fuel chamber contains about 1½ gals., sufficient for about 9 hours of ordinary operation. A flange on each side of the wick opening maintains the proper distance between the heater and the bottom of the switch point. Heaters are shipped with the wick installed, ready for immediate use. It is only necessary to place the heater beneath the switch point, fill the fuel chamber with kerosene and light the wick.



Now is the time to install Winter King Switch Heaters under all important switches. Then let the blizzards come. They'll find the vulnerable points of the system thoroughly protected. Winter Kings prevent nearly all of the trouble from moderate snowfalls and make it a lot easier to keep terminals open in heavy storms.

Winter King Switch Heaters are not only thoroughly effective, but economical as well. It costs very little to operate these heaters as compared with other methods of snow removal. One man can tend efficiently about 100 heaters. A single filling of kerosene lasts about 9 hours.

With Winter Kings in place it's easier to forestall the effects of a sudden snow or ice storm. It's so little trouble and expense to send a few men out to light up the heaters when the storm begins, while there's a natural tendency to avoid getting a large crew on the job for manual cleaning until actual trouble makes it necessary. Another advantage in using Winter Kings lies in avoiding the risk of accidents that goes with having a large number of inexperienced men at work in the yards.

Winter Kings installed now will prevent a lot of grief later on.

BETHLEHEM STEEL COMPANY

District Offices: Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Houston, Indianapolis, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, St. Paul, Washington, Wilkes-Barre, York. *Pacific Coast Distributor:* Pacific Coast Steel Corporation, San Francisco, Seattle, Los Angeles, Portland, Honolulu. *Export Distributor:* Bethlehem Steel Export Corporation, New York.

BETHLEHEM STEEL

GENERAL OFFICES: BETHLEHEM, PA.

IF RAILWAY EARNINGS

PUT-PUT
PUT
PUT
PUT
Z-Z-ZING
WOOD ANY SIZE RUSH ORDERS TOOK
IF I COULD ONLY GET MORE FOR MY WOOD I COULD BUY BETTER EQUIPMENT AND WITH BETTER EQUIPMENT I COULD SAVE TIME AND EXPENSE
WOOD CAREFULLY SAWED TO STOVE AND FIRE PLACE SIZE

GENERAL RAILWAY

New York Chicago ROCHESTER,
Montreal London Paris Tokyo

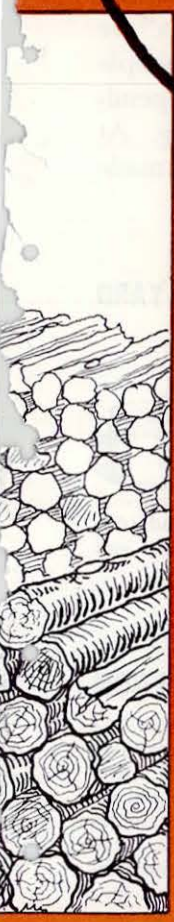
PERMITTED

SIGNALING, years ago, gave the railroads safety of train operation. Today, signaling systems not only give safety but increased speed, greater use of track and equipment and large definite savings.

Over a period of 30 years, this company, as one of the durable-goods industries, has been developing and perfecting signaling systems. Today, G-R-S Signaling Systems are effecting large economies in train operation. In other words, these systems are self-liquidating.

If railway earnings permitted, many of these modern and efficient signal systems would be purchased and installed. Such purchases would restore this Durable-Goods Industry to normalcy and make work for many men in this and other localities.

It's time to consider increased railway earnings and their effect on the Durable-Goods Industries if genuine recovery is to be secured.



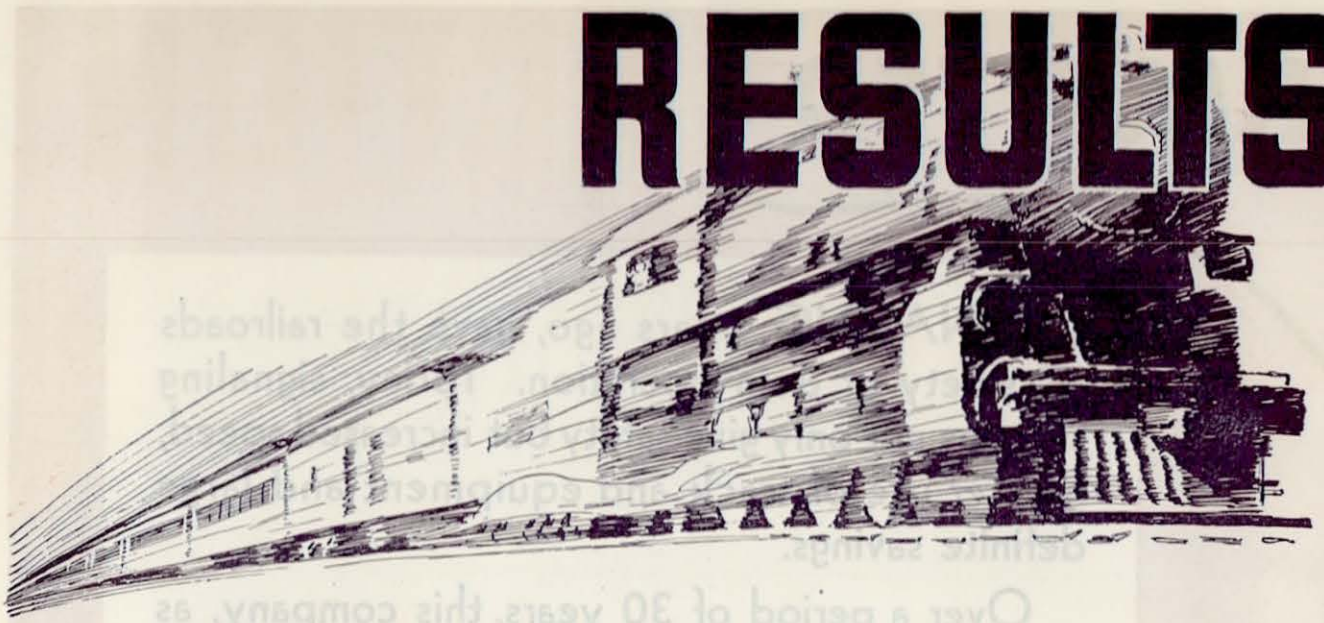
The country prospers as the railways prosper

SIGNAL COMPANY

NEW YORK St. Louis A-1248

Madrid Melbourne Calcutta Buenos Aires

RESULTS

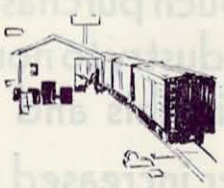


CHICAGO AND NORTH WESTERN LINE

For the 4th consecutive year the efficiency and coordination of its employes have earned it first place in safety among America's Class A Railroads.

A RAILROAD'S PRODUCT IS TRANSPORTATION—and to the extent that it can sell this product it is successful. The problem that confronts all of us is this: What can we do to stimulate business to the extent that profitable operation is the result? Here at "North Western" we feel that the solution, simply stated, is a matter of transporting people or things from "here to there" with the greatest convenience, dependability, speed and economy. Are we doing this? Unquestionably. At "North Western," for example, many improvements have been made in recent years, among them:

PROVISO YARD



—just outside Chicago. The world's largest freight yard. Ideally situated to serve the West, Northwest and Southwest. Eliminates necessity of trains passing through Chicago's congested areas. Has electrically operated hump and classification yard. Covers 1,250 acres. Track capacity 26,000 cars.

POTATO AND VEGETABLE YARD

—Wood Street Terminal. Largest and most modern in the world. Team track facilities provide for 600 cars — auxiliary tracks for 1,850 additional cars. Site: Western Avenue, Lincoln, 14th and 16th Streets, Chicago—nearest to markets and the downtown district.

EXPRESS TERMINAL

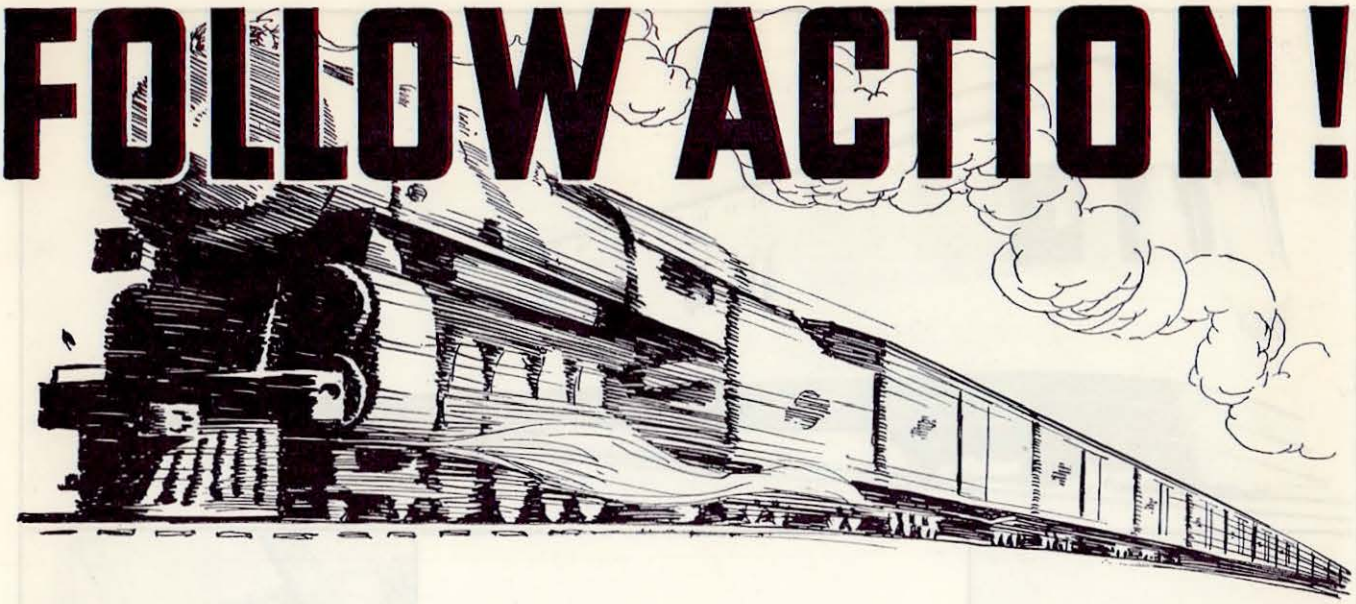
Speed, where speed counts!—"North Western" Express Terminal, for handling express shipments in the Chicago district. Saves more than an hour's time for shippers and receivers. 37 cars can be spotted along platform at one time. Location: Milwaukee Avenue and Halsted Street—accessible from all parts of the city.

WELLS STREET FREIGHT STATION

—Merchandise Mart, Chicago. Here speed is the order of each day and everything is conducive to it. Has 2,350 feet of enclosed inbound and outbound platform. Three sets of tracks, handling 93 cars, serve outbound platform; two tracks, with 50-car capacity, serve inbound platform.

SHIP AND TRAVEL VIA CHICAGO &

FOLLOW ACTION!



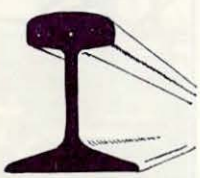
CLASS "H" LOCOMOTIVES

—largest dual-service locomotives in the world. "North Western" has 35 of these giants in service, each capable of pulling a 20-car passenger train 85 miles an hour, or 150 loaded freight cars (1⅓ miles long), traveling at a speed of 50 miles an hour!

AUTOMATIC TRAIN CONTROL

Only "North Western" provides continuous Automatic Train Control all the way between Chicago and Omaha. This invisible guardian of safety electrically controls the movement of all trains without the assistance of the engineer.

HEAVY DUTY RAIL



From a strap rail in the late Forties to the new 112-pound rail of the present day, is another "North Western" evolution. The new heavy-duty rail, recently laid between points on the Chicago-Omaha and Chicago-Twin Cities main lines, insures smooth riding—increases travel comfort.

AIR CONDITIONING

"North Western" is engaged in a most extensive program of air-conditioning of sleeping cars, parlor, club and observation cars and dining cars on all its through trains. Winter and Summer, travelers on these trains will enjoy clean, sweet, washed air of just the right humidity and temperature.

SPEED "North Western" is now equipped to operate at speeds in excess of 100 miles per hour. The immediate problem is danger at highway crossings. Perhaps the government could make no better use of capital and idle labor than to separate all or the most dangerous surface crossings.

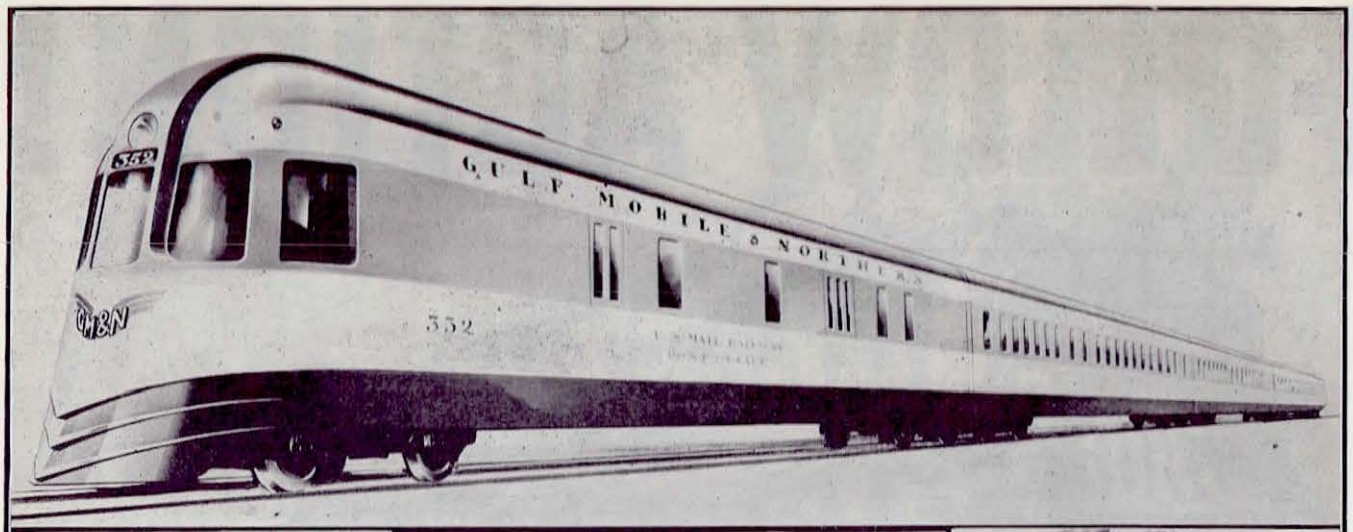
Increased efficiency and economy in rail operation must inevitably lead to increased rail business. When travelers and shippers realize that the railroads are providing them with a transportation service that most effectively meets their requirements, then we can confidently look for a boost in patronage. This, in turn, will enable the railroads to extend their purchases still further. Industry as a whole will benefit. Toward this end "North Western" is working and will continue to work. Results follow action.

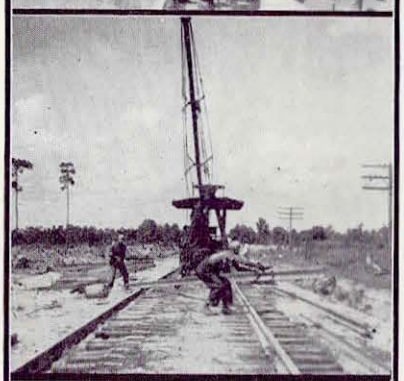
"North Western," with more than 10,000 miles of modern railway, serves the transportation needs of thousands of cities and towns in nine great middle-western states.

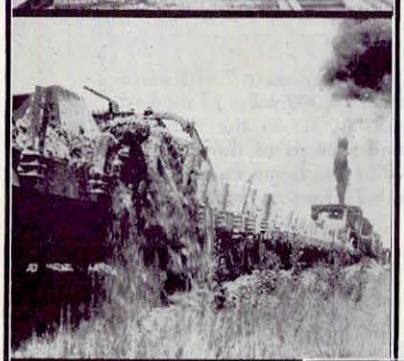
CHICAGO AND NORTH WESTERN LINE

Freight Traffic Manager *Vice-President—Traffic* *Passenger Traffic Manager*

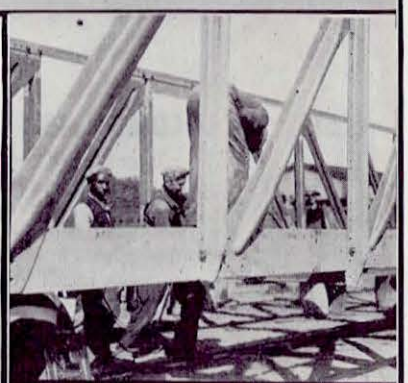
NORTH WESTERN RY.

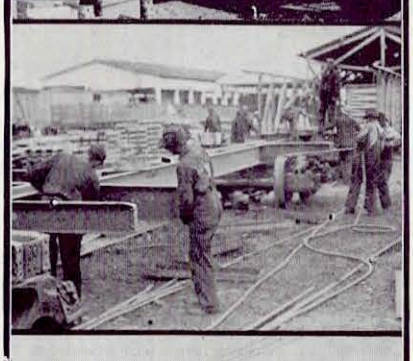




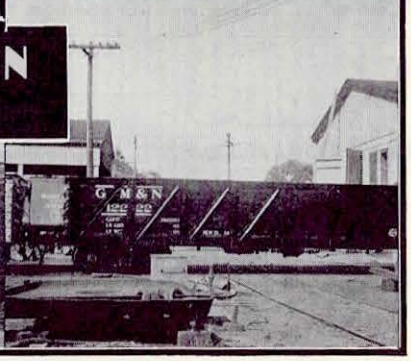


We are buying capital goods to the limit of our ability; we are not buying all we need. We would be buying substantially more, even with the demand for carrier services reduced as it is, if the Governments did not subsidize our competitors but required them to pay their way just as we have to pay our way.

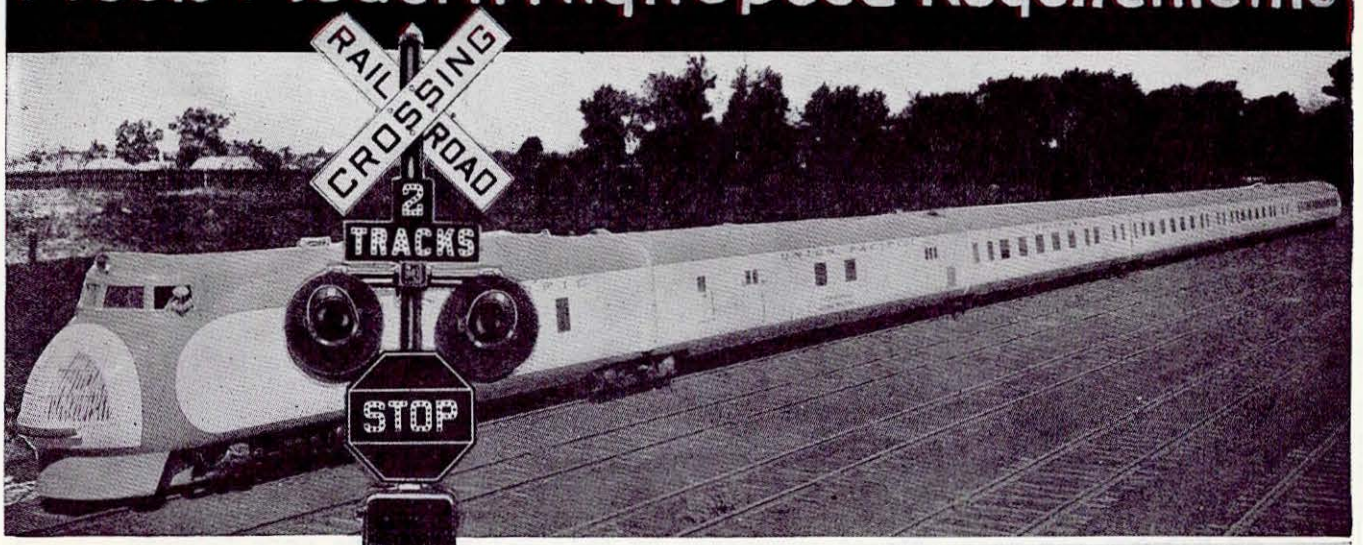


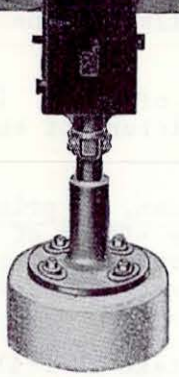


GULF, MOBILE and NORTHERN RAILROAD

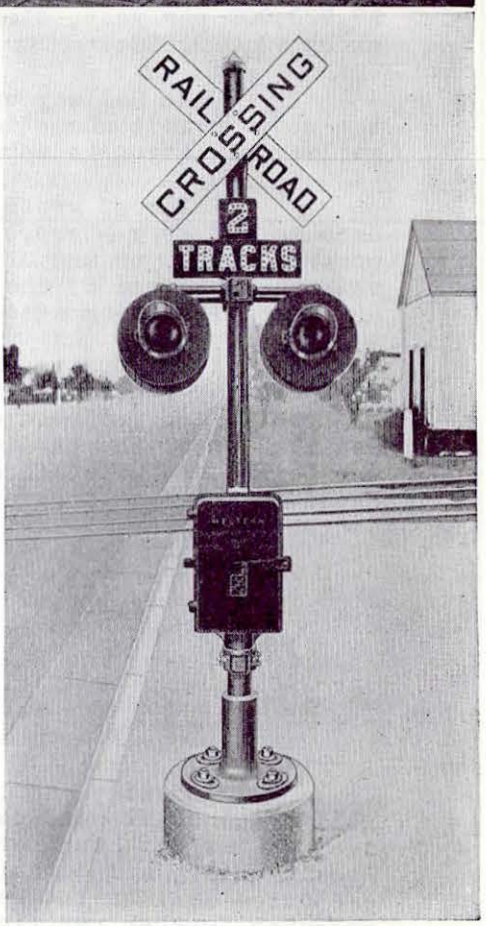


This Highway-Railroad Crossing Signal Meets Modern High Speed Requirements





Model 6 looks like this when train is approaching the crossing. The "STOP" sign compels attention.



Model 6 appears like this when tracks are clear. "STOP" sign is parallel to highway.

and is endorsed as standard by several State Commissions. Over 600 signals of this type are in service on 13 railroads. They are providing highway protection that is positively unfailing and one that demands attention and action.

Model 6 Signals will give railroad crossings better protection at low cost. They reduce traffic delays. They are economical in first cost and maintenance.

Model 6 Signal meets all requirements for adequate protection. It combines the standard A.R.A. flashing lights with the Federal highway standards of an Octagon Stop Sign. Model 6 says "Stop" only when it means "Stop."

Where pedestrian traffic is heavy a crossing bell can be added.

The signal is sold complete, or the Model 6 mechanism with banner and bracket can be mounted on A.R.A. flashing light highway crossing signals.

WESTERN RAILROAD SUPPLY COMPANY

Largest Manufacturers of Highway Crossing Protection Apparatus

2330-2360 SO. ASHLAND AVE., CHICAGO, ILL.

NEW YORK DENVER ST. LOUIS CLEVELAND ST. PAUL HOUSTON

THE NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY

OFFICE OF PRESIDENT

J. B. HILL
PRESIDENT

NASHVILLE, TENN.

To Industrial Leaders and Lawmakers:

Railroad purchasing power is an important factor in general prosperity. It is limited by railroad revenues. Revenues are presently low because of business depression, the diversion of traffic to other forms of transportation, and lower rates received on much of the remaining traffic.

In 1933, a depression year, the Operating Revenues of this Railway were reduced under 1929, a prosperous year, by 46 per cent. Operating Expenses were reduced about $6,600,000. Of the reduction, employes received about $4,900,000 less; those selling railroad material and supplies, about $1,700,000 less; and stockholders about $1,120,000 less. Additional expenditures for improvements in road and equipment in 1929 amounted to almost $1,500,000, while in 1933 such expenditures were about $50,000. Independent of the stimulus to business from expenditures of employes and stockholders, amounting to about $7,720,000 per year, direct purchases by this Railway alone were reduced about $3,000,000.

This Railway operates about 1200 miles of line. Increase the above result about two hundred times and a picture of the entire railway situation is approximated.

Railroad gross and net revenues are, then, of prime importance to industry - gross revenues, because of the effect of purchasing power of employes and of railroad companies in normal operation; net revenues, because of the effect of the purchasing power of stockholders and of railroad companies in making improvements.

All industry, therefore, has a great stake in railroad prosperity. Logically, then, it should actively support and encourage the public and railroad employes to support that National and State legislation in the public interest which is fair and reasonable to the railroads. Specifically are mentioned bills which will be introduced in the next Congress similar to those introduced in the last Congress, namely:

The Dill Bill, S. 3171, regulating buses and trucks;

The Dill Bill, S. 3172, regulating water carriers;

The Pettingill Bill, H. R. 8100, amending the Fourth Section of the Transportation Act.

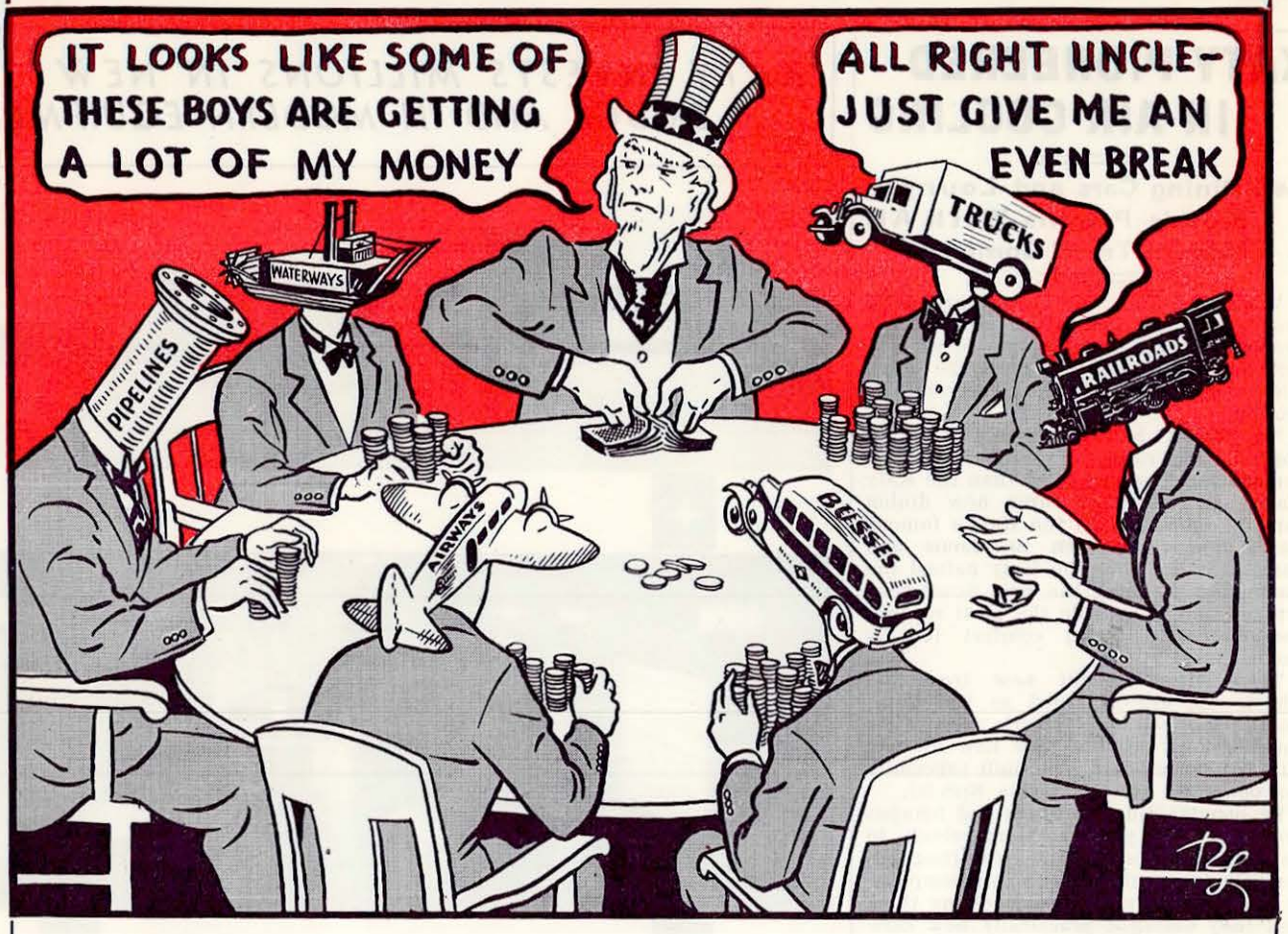
Industry and lawmakers should also oppose legislation that will place heavy handicaps on the successful operation of railroads, such as the Six-Hour Day Bill, the Train Limit Bill, the Full Crew Bill, Pension Bill, and Signal Bill. This opposition would not be based on any prejudice against the welfare of labor, but on the belief that such measures further restrict railroads in their ability to meet new forms of competition to the ultimate detriment of even railroad employes.

The Dixie Line desires to continue to improve its plant and equipment and make a further contribution toward an ever faster and better service to and from the Southeast.

President.

TREAT RAILROADS FAIRLY
PUT COMPETITORS ON EQUAL BASIS AS TO TAXES AND REGULATIONS

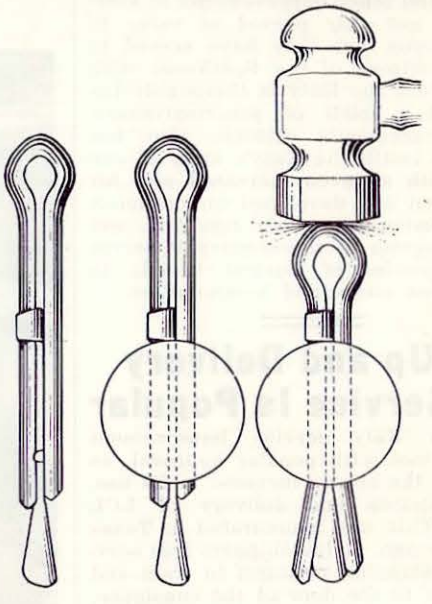
Is Mr. Railroad about to get a Square Deal?



LOCK-TITE PINS FOR SAFETY

Many serious accidents can be traced to a missing cotter which may have been lost out of the pin due to any one of many causes, such as not properly spread, vibration and wear, broken prongs, etc.

LOCK-TITE PINS are safe—they cannot and will not fail.



GUSTIN-BACON MANUFACTURING COMPANY

KANSAS CITY CHICAGO PHILADELPHIA SAN FRANCISCO

KATY WILL CONTINUE

KATY PIONEERED IN AIR COOLING

New Dining Cars and Lounges Provide Patrons With All Modern Travel Comforts.

While the Katy has been consistently progressive in instituting service improvements, the inauguration of air-conditioned equipment attracted the most widely discussed and most favorable attention.

No sooner had air conditioning as applied to railway equipment been demonstrated as practical, than the Katy placed an order for three new dining cars for operation on the Katy's famous Texas Special between St. Louis and San Antonio. Thus the Katy gained the distinction of being the first Southwestern railroad to provide the most modern and up-to-date travel comfort for its patrons.

These diners, built new from the wheels up, are regarded as the finest examples of the car builder's art and are equalled only by the four new air-conditioned lounge cars, also built especially for operation on the Texas Special.

So popular did the diners and lounges prove that last year the Katy rebuilt, in its own shops, six diners, installing air-conditioning equipment and so completely reconstructing and redecorating them that they emerged practically new cars.

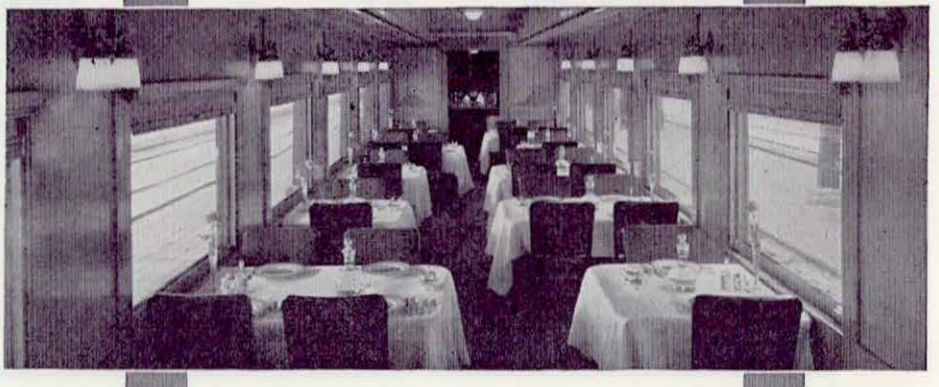
These and other improvements in service have not only proved of value to Katy patrons, but they have served to impress citizens of the Southwest with the fact that the Katy is thoroughly imbued with a spirit of progressiveness. The management's attitude also has served to instill the Katy's army of employes with an even increased zeal for service and has developed an optimism and enthusiasm for their company, and for the section of the country it serves that is proving of marked benefit to Katy-served cities and communities.

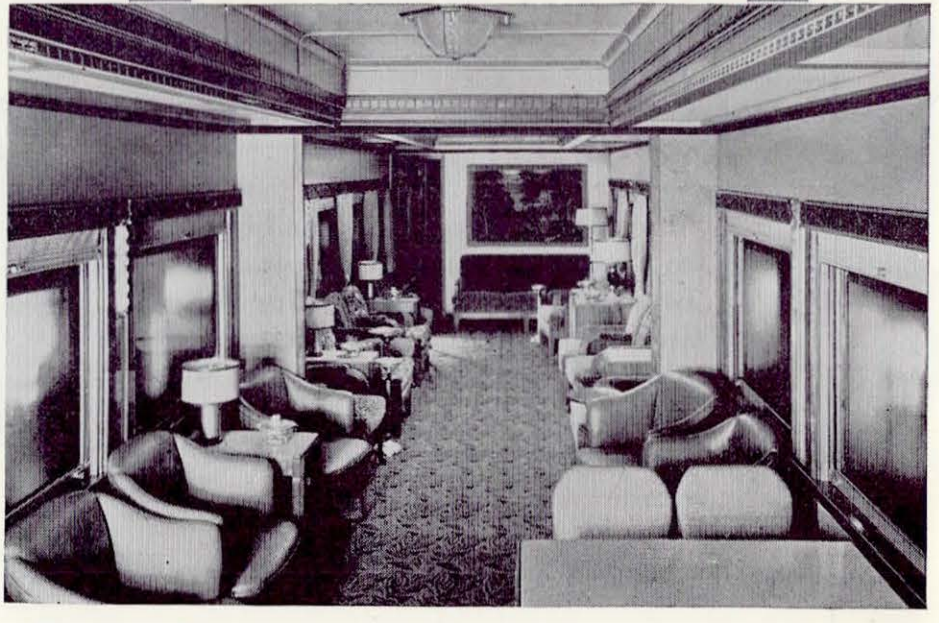
Pick Up and Delivery Service Is Popular

Another Katy service improvement that has met with popular approval, as shown by the steady increase in its use, is the pick-up and delivery of LCL freight. This was inaugurated in Texas four years ago, giving shippers free service from shipping platform to train and from train to the door of the consignee.

During the first year the volume of less-than-carload merchandise billed out was 39,211,113 pounds; the second year, 45,494,094; the third year, 54,941,231; the fourth year, 81,661,482. The increase of the fourth year of operation over the third year was 49 per cent; the fourth year over the second year, 79½ per cent; the fourth year over the first year, 108 per cent.

KATY INVESTS MILLIONS IN NEW BRIDGE AND IN MODERN EQUIPMENT

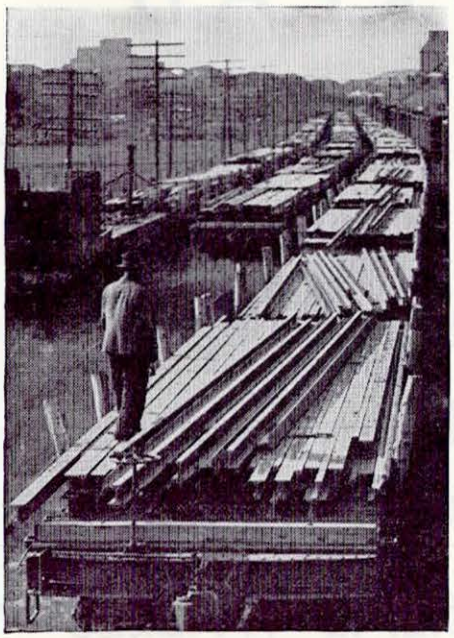




These views illustrate some of the forward strides taken by the Katy in recent years. At the top is a view of the Katy's new $1,200,000 bridge across the Missouri River near Boonville, Mo., featuring the longest lift span in the world. Center is a view of one of the Katy's deluxe air-conditioned dining cars and below a view of one of the Katy's new lounge cars, also air conditioned and regarded by travelers as the finest pieces of railway equipment in America.

IMPROVEMENT PLANS

New Rail on Hand For Big Relaying Project



Looking to future needs, the Katy recently purchased 150 cars of new 112-pound steel rail and rail fastenings, to be used in relaying 25 miles of main line track near McAlester, Okla. The above picture shows some of the cars now stored in the Katy's North McAlester yards. The relaying program is scheduled to commence early next year.

Freights Operate on Overnight Schedules

Katy improvements have not been confined to making passenger trains more luxurious, more comfortable and faster. Inauguration of the Katy Komet is regarded by Texas shippers especially as a typical Katy contribution to improved service.

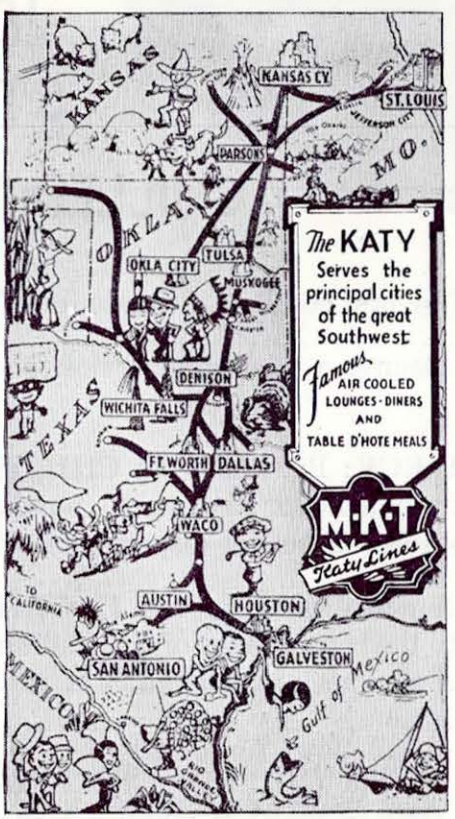
The Katy Komet, in connection with the Katy's free pick-up and delivery of LCL freight, gives shippers the maximum in modern freight service. As a result of this service, shipments picked up by truck late in the afternoon are delivered early the next morning at destinations served by the Komet. These include Houston and Galveston, Dallas Ft. Worth and San Antonio. Corresponding fast service also is provided intermediate points.

Shippers everywhere have acclaimed recent improvements in the Katy's general freight service through Missouri, Kansas, Oklahoma and Texas, Katy fast freights serving the principal cities of the Southwest through both the St. Louis and the Kansas City gateways.

PIONEER SOUTHWESTERN RAILROAD PLEDGED TO PROGRESSIVE POLICIES

NEVER a laggard in providing its patrons with modern transportation service, the Katy—friendly, affectionate designation of Southwesterners for the Missouri-Kansas-Texas Railroad—is pledged to a continuation of its progressive policies. The coming year will see a notable increase in its always ambitious improvement and betterment program.

Katy Lines Traverse Fast Growing States



The great Southwest, served by the Katy Lines, is one of the most prosperous sections of the United States. Unbelievably rich in natural resources, it offers unsurpassed opportunities for commercial, industrial and agricultural development. Thanks to its mild, invigorating climate, the Southwest also is regarded as the ideal vacationland by all those seeking health and outdoor recreation. Because it serves so many principal cities and because of its ultra modern equipment, the Katy is the popular Southwestern route.

Convinced that 1935 will witness a material strengthening of general business conditions, and that the Southwest is facing a new era of development, the Katy's management has been active for several months with plans for further improving its service.

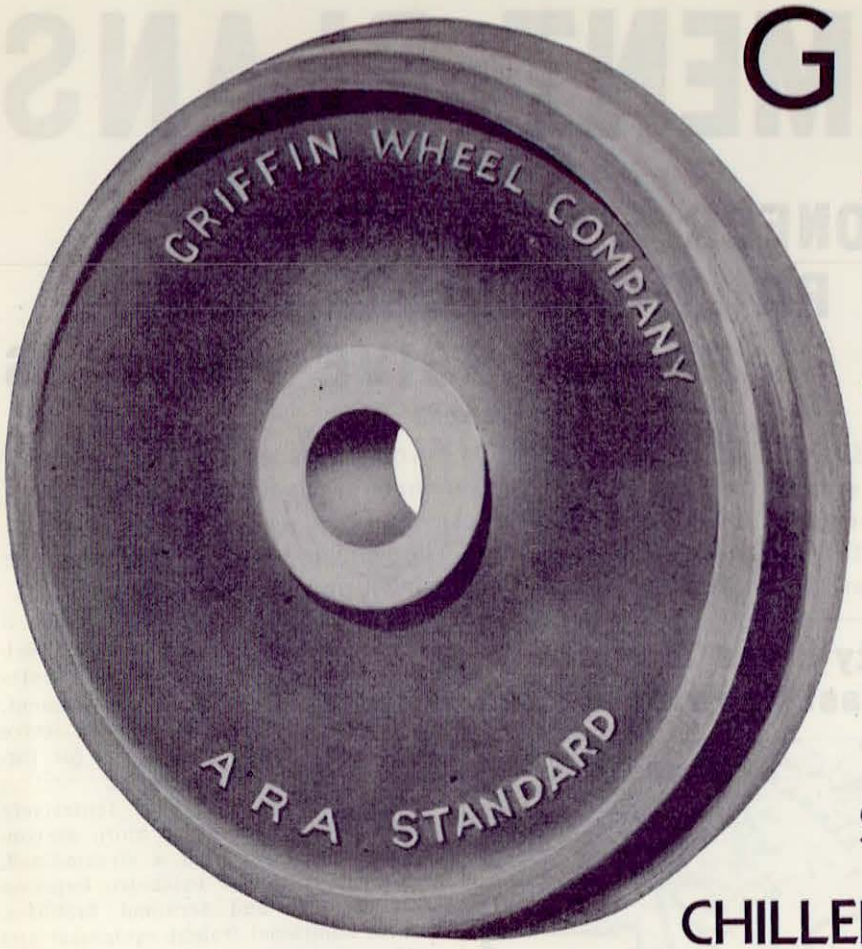
These plans, so far only tentatively agreed upon, provide for more air-conditioned equipment and a stream-lined, high-speed train, for extensive improvement of track and terminal facilities, and for additional freight equipment and motive power.

"The Katy is awake to the fact that the railroads must keep abreast of the times and continue to make improvements in service if they are to continue to keep the public's good-will," said a recent statement issued by the Katy's general offices. "For that reason it has been making a careful study of plans for general improvements. The Katy feels the Southwest is entitled to the best in the transportation field and is arranging to keep its service in tune with the progressive spirit of the territory it serves."

Since the Christmas day 64 years ago when a Katy wood-burning locomotive chugged its way across Red River—the first railroad to enter Texas from the north—the Katy has been known as "the Pioneer Railroad of the Southwest", and not a year has passed but what it has made notable contributions to advanced service and thus speeded the growth, development and prosperity of the entire Southwest.

Held in high esteem by the pioneers and their descendants and all those others who populate the territory it serves, the Katy is looked upon as a leader in transportation, and as a result has occupied an enviable position in the mind of the Southwestern public.

Keenly appreciative of this attitude, the Katy has consistently adhered to a progressive policy and will devote its best efforts and its resources to providing the Southwest with the most modern, most dependable and most efficient transportation service possible.



GRIFFIN CHILLED TREAD WHEELS

WHY 97% OF THE RAILROADS STANDARDIZE CHILLED TREAD WHEELS

1. **ECONOMY:** Governed by first cost and ultimate life of **GRIFFIN WHEELS.**
2. **GUARANTEE:** Which assures a minimum service for **GRIFFIN CHILLED TREAD WHEELS.**
3. **CONVERSION PRIVILEGE:** By which old **CHILLED TREAD WHEELS** can be returned in part payment for new wheels purchased, thus assuring the RAILROADS of a favorable market for disposing of old wheels.
4. **ACCESSIBILITY:** The accessibility of the **12 GRIFFIN PLANTS** in all sections of the country to the repair shops of the Railroads avoids the necessity of carrying large stocks of wheels and eliminates the expense and delay of long hauls.
5. **SAFETY:** The safety of the **GRIFFIN CHILLED TREAD WHEEL** is unquestioned, no other type or make of wheel has such a remarkable record of safety.

THE FOOD SUPPLY OF THE NATION IS CARRIED ON CHILLED TREAD WHEELS

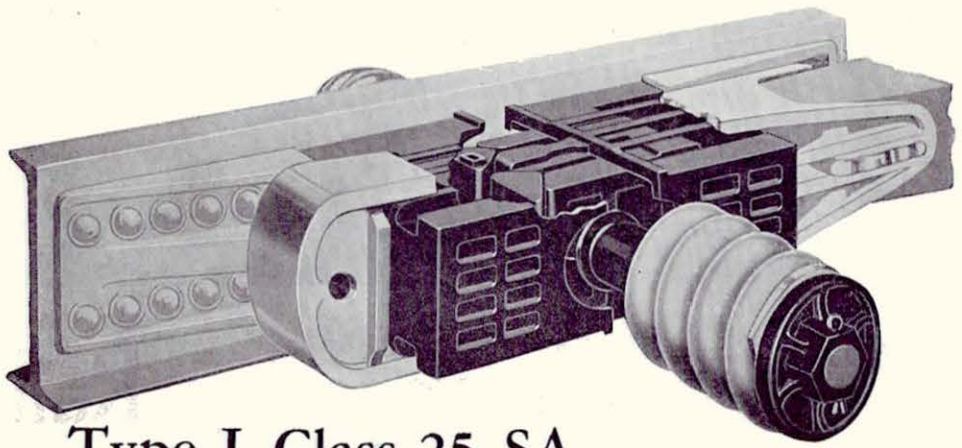
GRIFFIN WHEEL COMPANY

410 NORTH MICHIGAN AVENUE **CHICAGO, ILLINOIS**

Plants

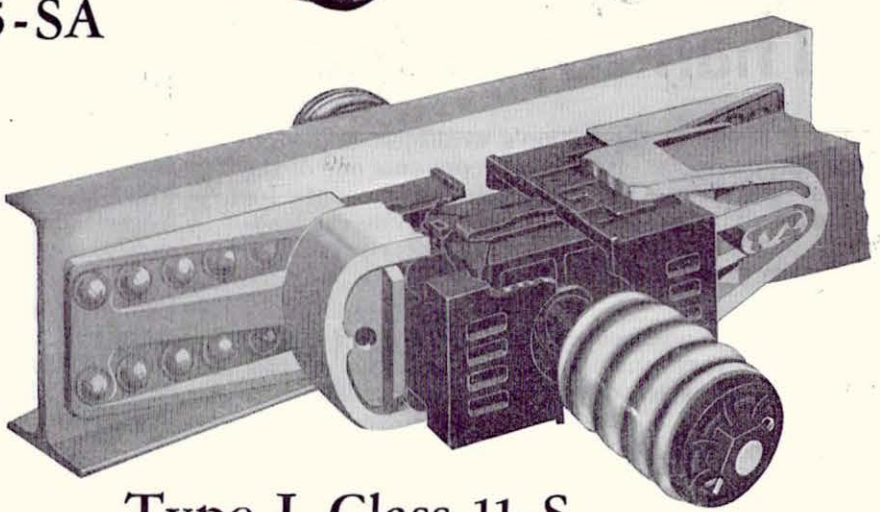
Chicago	Boston	Cincinnati	Kansas City	Denver	Los Angeles
Detroit	Cleveland	St. Paul	Council Bluffs	Salt Lake City	Tacoma

Identical in Capacity
CARDWELL FRICTION DRAFT GEARS



Type L Class 25-SA

Certified A. R. A. 1931



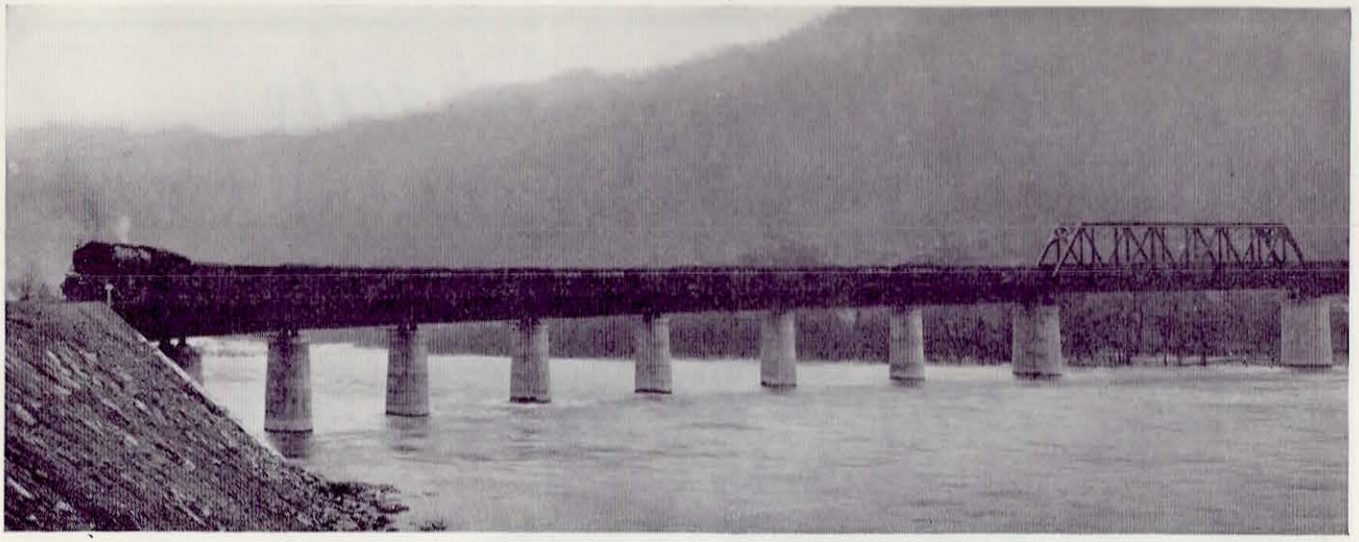
Type L Class 11-S

All parts identical and interchangeable except friction casings.

The Cardwell L-11-S Gear, requiring a yoke pocket only 18½" long, develops the same capacity and car protection as the Cardwell L-25-SA Certified Gear, the latter requiring a 24⅝" yoke pocket.

Cardwell Westinghouse Company
332 South Michigan Avenue, Chicago, Ill.

CANADIAN CARDWELL COMPANY, LTD.
Royal Bank Building, Montreal, Quebec



Heat Units Move Cheaper by Rail Than by Pipe Line or Highway

COAL is one of the nation's wealthiest and most vital products. Its mining represents one of the largest industries—Its transportation accounts for approximately 20% of the annual revenue car loadings. In addition, railroads consume nearly a million tons every year.

On many railroads, coal is the major item of traffic. Naturally every curtailment in the use of this product must affect the transportation industry as

well as mining. During the past five years, oil and gas have been making heavy inroads in the fuel markets for both industrial and home consumption. This condition is largely due to the use of pipe lines which serve as main feeders and public highways for delivery of oil by trucks to outlying points.

A careful analysis of the situation shows that industry and the public have fallen for the propaganda which stresses theoretical advantages of piped fuels. Advertisements for these fuels claim greater efficiency, economy and elimination of smoke nuisance.

Examination of the actual facts will show that coal burned in a modern scientific manner is by far the most efficient and economical fuel. On a heat unit basis, it is cheaper at the mines and costs much less to transport by rail than oil or gas through pipe lines.

The VIRGINIAN RAILWAY is naturally interested in the future of coal. This product accounts for over 90% of its traffic. Naturally, its operating revenues in proportion to the tonnage handled must be low. The average revenue for all freight handled on the VIRGINIAN last year was only 6½ mills per ton mile.

Due to the depression and unfair conditions which exist at present in the transportation industry, the annual gross earnings of the VIRGINIAN have declined 25%. Naturally, it has been compelled to reduce its expenditure to a similar degree.

In harmony with all other railways, the VIRGINIAN protests against the unfair and uneconomical conditions which are not only destroying the railroads but also many other vital industries and loading an unbearable tax burden on the shoulders of the public.

Equal regulation of all carriers and their rates will eliminate vicious cut-throat competition in the fuel industry as well as transportation.

VIRGINIAN RAILWAY

CABLE ADDRESS "PERMUTIT"

THE PERMUTIT COMPANY

DIVISION OF GENERAL WATER TREATMENT CORPORATION

330 West 42nd Street - New York, N. Y.

——INDUSTRIAL AND HOUSEHOLD ZEOLITE WATER SOFTENERS——
ZEOLITES—HOT AND COLD LIME-SODA WATER SOFTENERS—FILTERS
CHEMICAL FEEDING DEVICES—OTHER WATER TREATING EQUIPMENT
——CONTINUOUS BLOWOFF AND HEAT RECOVERY EQUIPMENT——
————RANAREX CO_2 INDICATORS AND RECORDERS————

Mr. Samuel O. Dunn, Editor
Railway Age
30 Church Street
New York, N. Y.

Dear Mr. Dunn:

"Railway Age" is performing a real service in stressing the importance of modernizing rail transportation. May I add a word in support of that program?

I believe in rail transportation. I believe the usefulness of this vast public service will contribute largely to both the industrial and agricultural recovery of this country. It is my belief that modernization of the railroads is the next logical step in the recovery program.

Some people ask: why should the government help the railroads modernize? There are very good reasons. Modernized equipment will save money for the railroads. It will save enough to pay for such modernization. It will save enough *more* to increase materially the railroads' income which will be available for interest on their bonds held directly by the public or indirectly through insurance companies and savings banks. It will enable the railroads to serve the public more efficiently by making available a transportation service which meets the needs of the present day.

What new equipment can make such savings? There are many kinds. One of these I know about. It is water softening equipment.

Railroads know the value of softening their boiler feed water. They know it eliminates hard water scale in boilers, the most frequent cause of locomotive shopping. We have records of a Class 1 railroad that installed zeolite water treating equipment that cost $140,000. In one year they saved through the use of this equipment $391,000 on boiler materials, washings, and shopping costs alone. This saving did not include sizeable reductions in fuel expense.

Water treatment is only one of many investments that will immediately increase railway earnings. But the railroads need government assistance to start such modernization.

Very sincerely yours,

W. Spencer Robertson

President

The Straight Road to Low Cost Transportation

Railroad transportation is mass production—the manufacturing of an essential service in so large a volume and with so efficient a plant that the product can be sold at a low price, be freely used, and thus stimulate all lines of business.

It may not be far-fetched to say that mass production originated with railroad transportation. Almost overnight it swept out of existence the pony express, stage coach, team freighter, covered wagon and river boat. The mass production of transportation afforded a better service at a lower cost.

It is elemental that the nearer we come to using our railroad plant to its maximum capacity, the lower will be the unit cost of producing transportation. It is also highly important, of course, that the railroad plant itself be maintained at peak efficiency, and that all costs entering into the production of railroad transportation be held at reasonable levels.

The railroads are admittedly indispensable for the transportation of a great part of the nation's commerce. The charges for this particular kind of transportation depend, and must continue to depend, upon the cost of producing it. This relation of charges, or rates, to costs is further assured by the rigid regulation of rates by the federal government and the respective states.

It is inevitable that any public policy that artificially diverts traffic from the railroads, or impairs the efficiency of the railroad plant, or unduly increases its operating costs, can only have the effect of increasing the cost that must eventually be borne by the public.

We sometimes overlook the simple fact that all costs must be paid eventually by some one. No

private group of owners can sell transportation for very long for less than the cost of producing it, as they are doing today. The only pocketbook that is deep enough to stand such a drain is Uncle Sam's, and there is no economy merely in shifting transportation costs from shippers to taxpayers. On the contrary, it is more than likely to cost the taxpayers more than the shippers save. In the end, the public pays more for its transportation rather than less.

A sound public policy is one that will encourage fair competition among the various kinds of transportation—a competition based upon the merits and advantages inherent in each form of transportation.

Cost-shifting devices will have no place in such a policy. Every transportation agency will pay all of its own costs. Those using publicly owned facilities such as waterways and highways will pay fully compensatory tolls. Each will bear its full share of the general tax burden for the support of schools and other expenses of state and local governments.

Discrimination will have no part in such a policy. Regulation will be extended equally and impartially over all kinds of transportation. It will not unduly restrict or favor any. It will not impose burdens and responsibilities on one that it does not impose on the others.

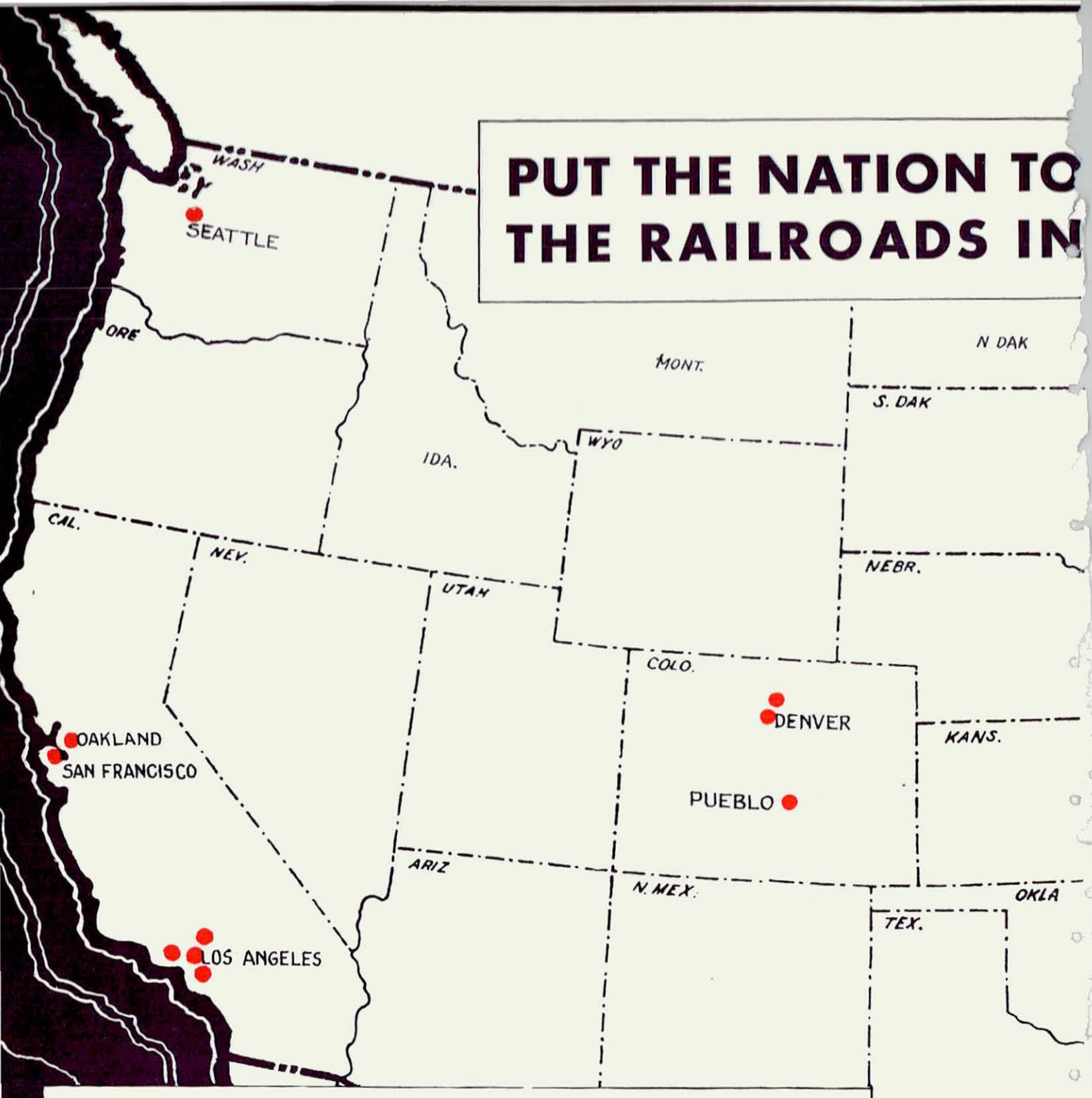
This kind of a policy will halt the artificial diversion of traffic away from the railroads. It will preserve for the public the benefits of mass production of transportation. It will stop the shifting of transportation costs to taxpayers. It will stem the upward trend of railroad rates and turn them downward. It will promote the fullest development of other forms of transportation in their economic spheres.

This is the straight and common-sense road to efficient, low cost transportation.

L. W. Hilly

President

GREAT NORTHERN



PUT THE NATION TO
THE RAILROADS IN

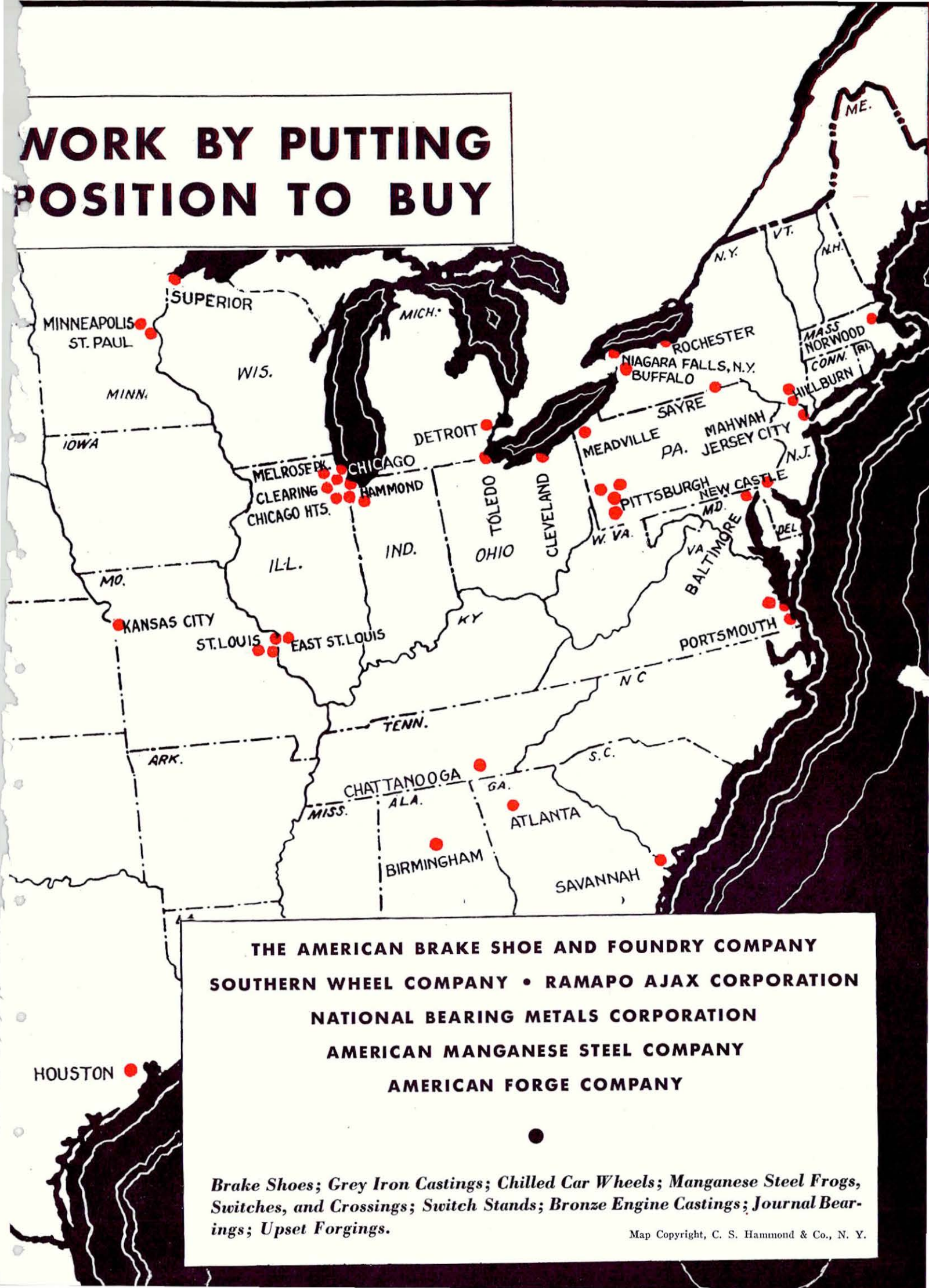
IF the railroads are given a fair rate structure they will be put in position to buy the materials and equipment they need.

The railroads of the United States would normally buy 100,000 freight cars and 2,000 locomotives annually, involving the production of 800,000 CAR WHEELS, 865,000 BRAKE SHOES and 12,900 tons of BRONZE ENGINE CASTINGS and JOURNAL BEARINGS, requiring approximately 2,861,000 man hours to manufacture.

A normal program of track maintenance would include the production of special track work, such as FROGS, SWITCHES and CROSSINGS, which items would run well over 100,000 tons of material and require more than 2,600,000 man hours to produce.

The plants designated in red produce these items. Their employees and the communities in which they are located are vitally interested in the return of normal purchasing power to the railroads.

WORK BY PUTTING POSITION TO BUY



THE AMERICAN BRAKE SHOE AND FOUNDRY COMPANY

SOUTHERN WHEEL COMPANY • RAMAPO AJAX CORPORATION

NATIONAL BEARING METALS CORPORATION

AMERICAN MANGANESE STEEL COMPANY

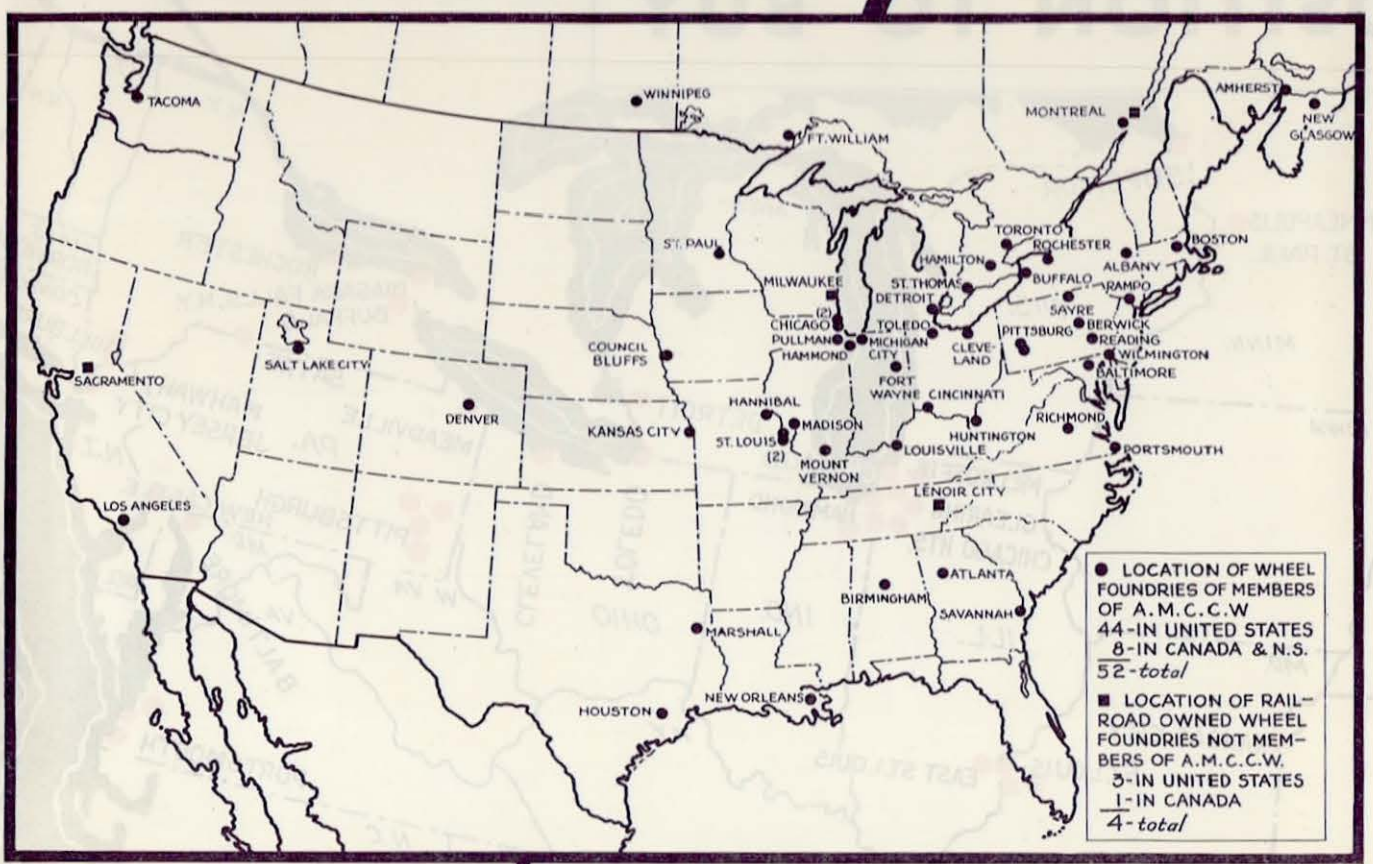
AMERICAN FORGE COMPANY

●

Brake Shoes; Grey Iron Castings; Chilled Car Wheels; Manganese Steel Frogs, Switches, and Crossings; Switch Stands; Bronze Engine Castings; Journal Bearings; Upset Forgings.

Map Copyright, C. S. Hammond & Co., N. Y.

Essential!



LOCATION OF ALL CHILLED CAR WHEEL FOUNDRIES IN U. S. AND CANADA

WHAT WHEELS ARE TO RAILWAY TRANSPORTATION, RAILWAY RECOVERY IS TO NATIONAL RECOVERY

A railroad without wheels? Impossible, of course. The wheel is the basic element in railway transportation.

National recovery without railway recovery? Likewise impossible. Lacking the normal huge orders of the railways, the durable goods industries cannot prosper, and recovery in the durable goods industries is the key to national recovery.

WHEN RAILROADS BUY FEWER WHEELS, THE LOSS IS NATIONAL

Foundries producing Chilled Tread Wheels are situated in 47 cities, in no less than 27 states. Lack of railroad orders means unemployment in these cities and states and in the areas from which the materials for Chilled Tread Wheels are secured. Renewed railroad buying will mean recovery, re-employment from coast to coast.

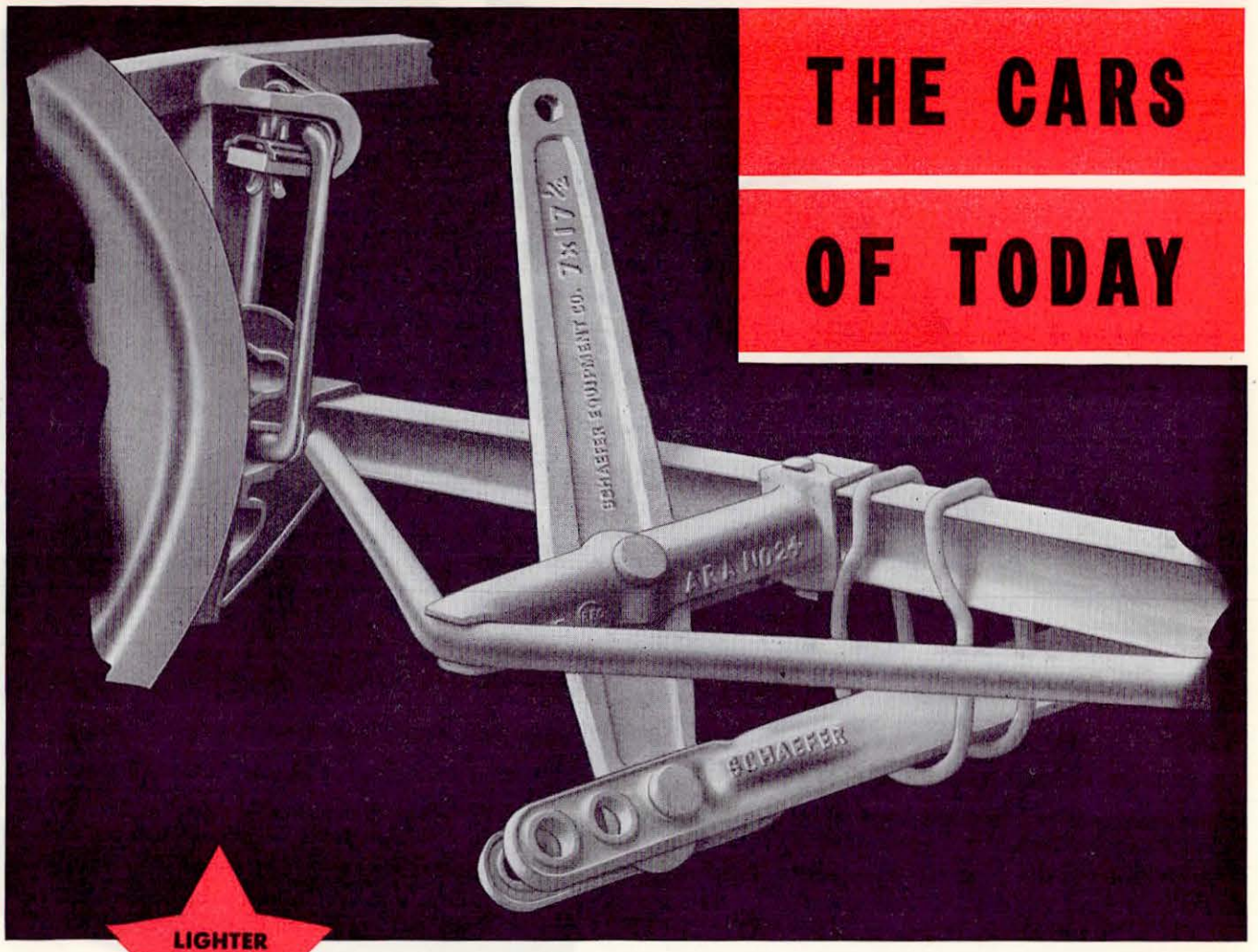
GIVE THE RAILROADS A CHANCE!

The railroads need the dependability and economy of Single Plate Chilled Tread Wheels. Give them a chance to earn the money with which to buy them!

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

1847 McCORMICK BUILDING, CHICAGO, ILLINOIS

MODERN BRAKE DETAILS FOR THE CARS OF TODAY



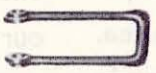
LIGHTER WEIGHT

LONGER LIFE

GREATER SAFETY

For safety under every service condition, with least possible weight, Schaefer Foundation Brake Gear Details are unequalled. • Stock sizes for immediate shipment. • Can be furnished in Man-Ten and Cor-Ten Steels.

BRAKE ROD JAWS



LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS

TRUCK, CYLINDER AND FLOATING LEVERS

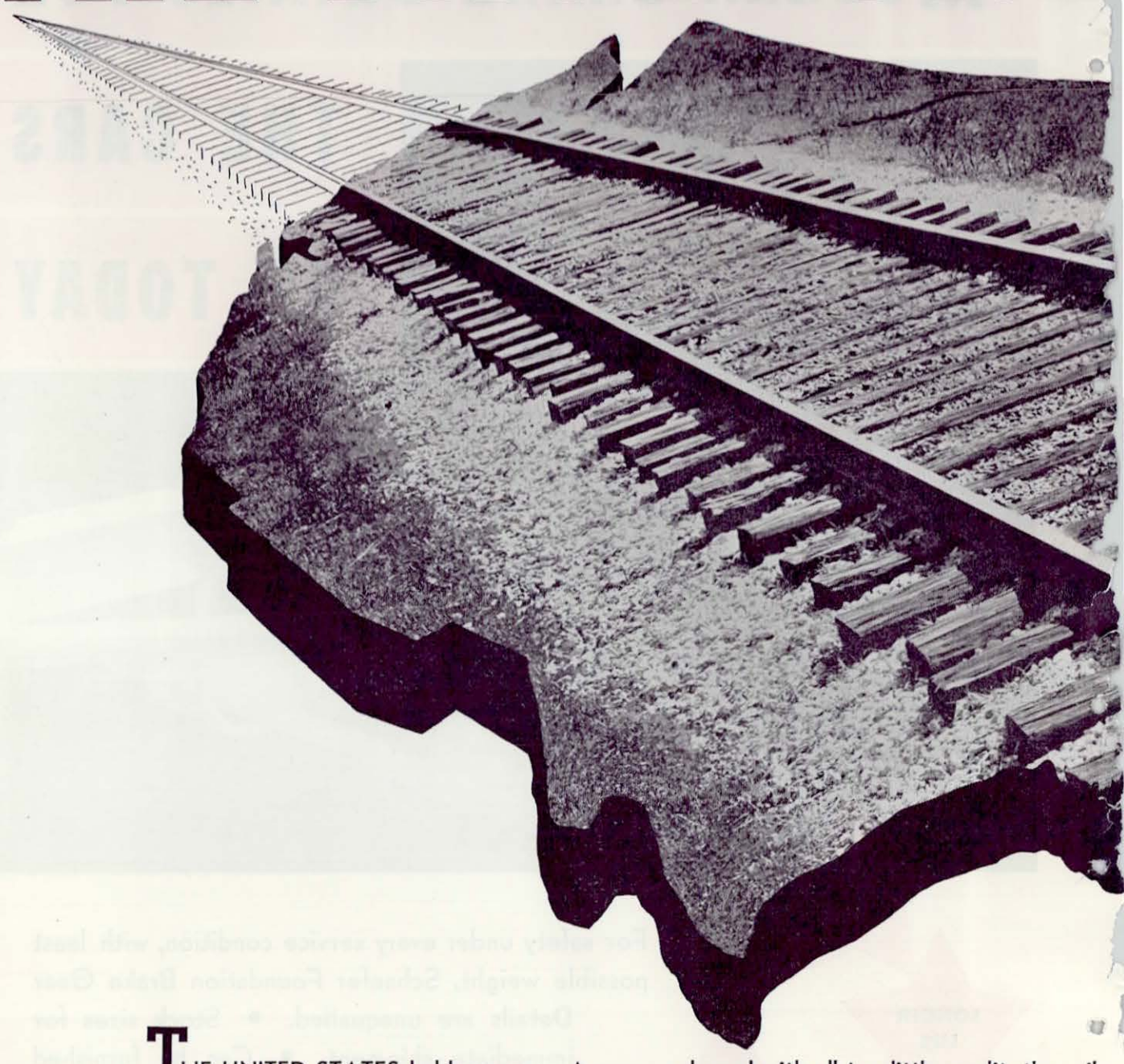
WEAR PLATES

TRUCK LEVER CONNECTIONS

SCHAEFER EQUIPMENT COMPANY

GENERAL OFFICES: KOPPERS BUILDING, PITTSBURGH, PA.

THE BACKBONE



THE UNITED STATES holds more millions of people enjoying life's luxuries than any nation has ever known in the world's history.

This high standard of living, uniquely American, is built solidly on the railway trackage of America. No matter where we live, we can have California oranges and Washington salmon, Michigan's motor cars and New York's latest fashions.

The railroads bring them all. And all of these and many another might carry price-tags saying, "Priced extremely low . . . thanks to the railroads."

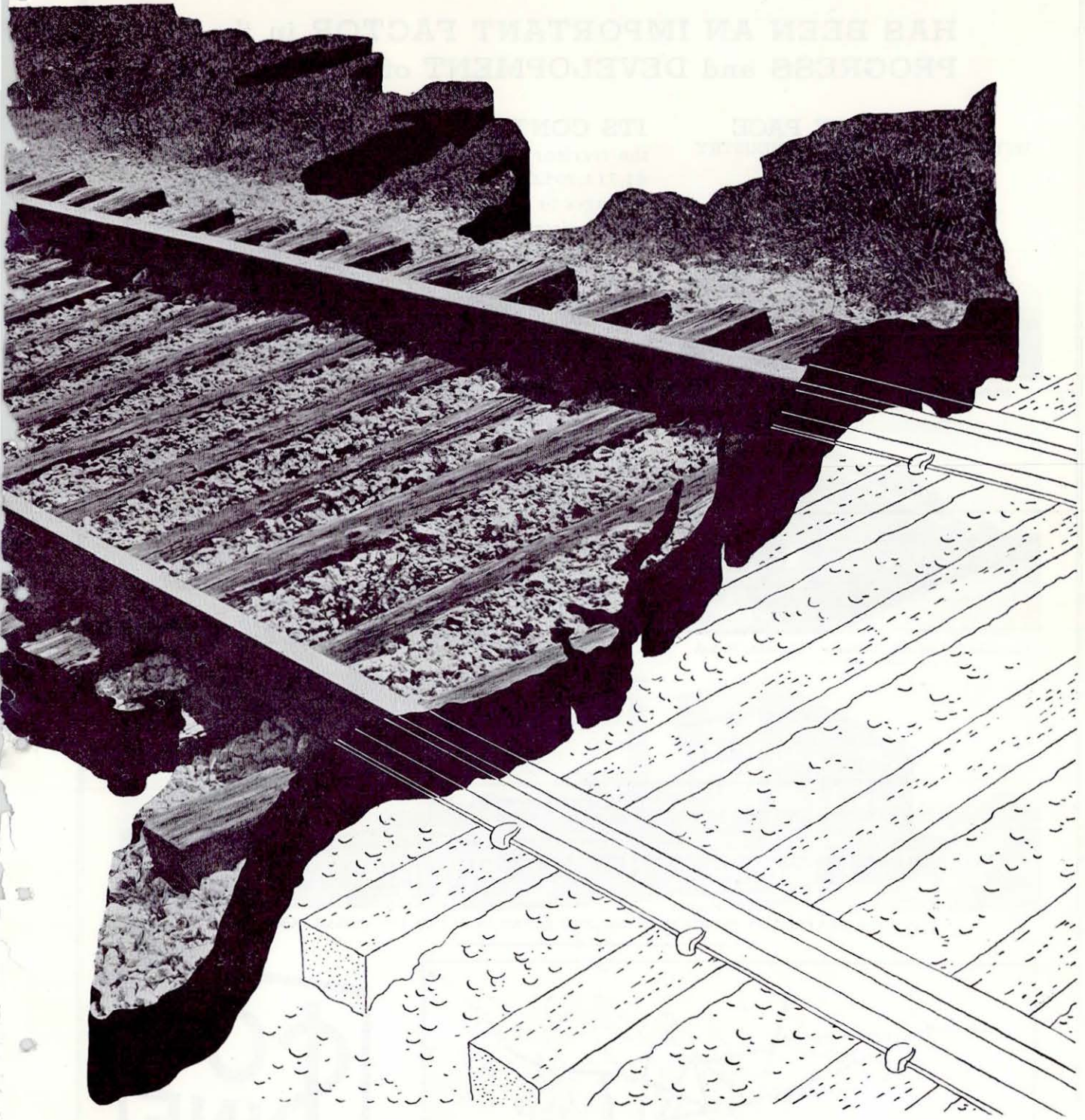
Anonymously and with all too little credit, the railroads add generously to the daily happiness of our individual lives.

Their enormous purchases contribute materially to our national welfare and are essential to prosperity.

★ ★ ★

Supplementing the railroads, and supporting them in their vital work, is General American Transportation Corporation . . . builders of all types of railroad freight cars, lessors of refrigerator, tank, stock and express refrigerator cars and operators of the nation's largest bulk liquid terminal system.

OF THE NATION



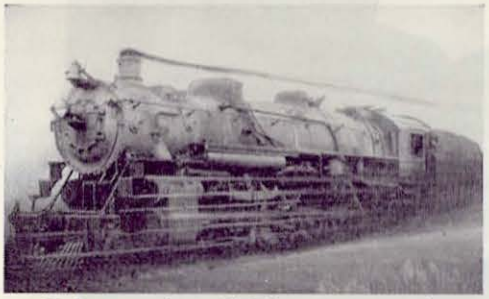
GENERAL AMERICAN TRANSPORTATION CORPORATION

Supplementing the Railroads in their Vital Work

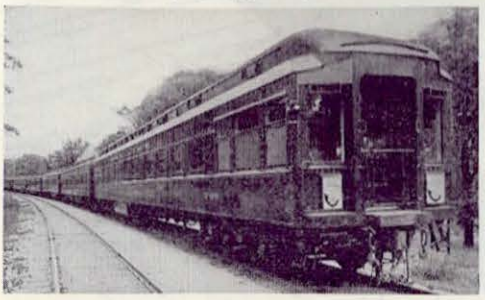
for OVER HALF a CENTURY the SOO LINE

HAS BEEN AN IMPORTANT FACTOR in the PROGRESS and DEVELOPMENT of the WEST

IT HAS KEPT PACE
WITH THE DEMANDS OF INDUSTRY



Modern power has enabled the company to serve its patrons efficiently



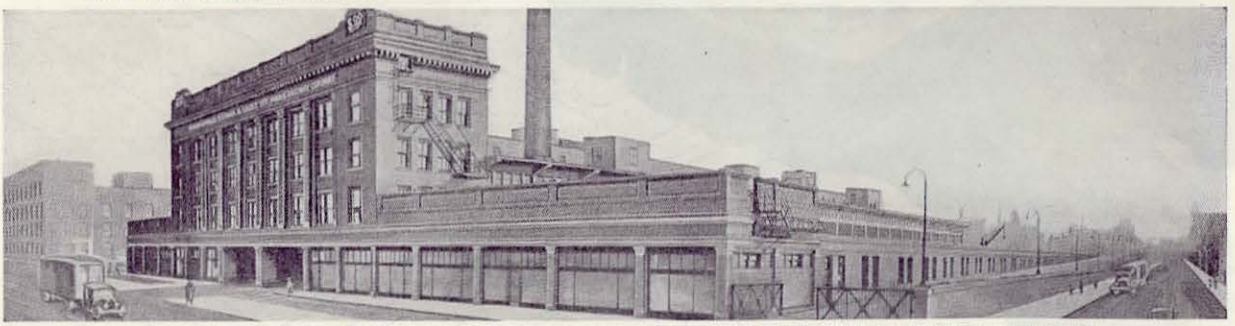
Fast trains link the cities of Chicago, Milwaukee, Duluth, St. Paul, Minneapolis and Winnipeg

ITS CONTRIBUTION to the financial stability of the territory it serves amounted, in part, in 1933, to $1,711,205.00 in taxes paid and to $10,938,334.00 paid in wages to employees. Earnings, however, have declined due to circumstances over which it has no control such as increased wages, increased prices of commodities, unregulated competition, etc., to a point which prevents it from making purchases amounting to millions of dollars in cars, locomotives, shop equipment, operating and miscellaneous equipment needed as replacements and additions.

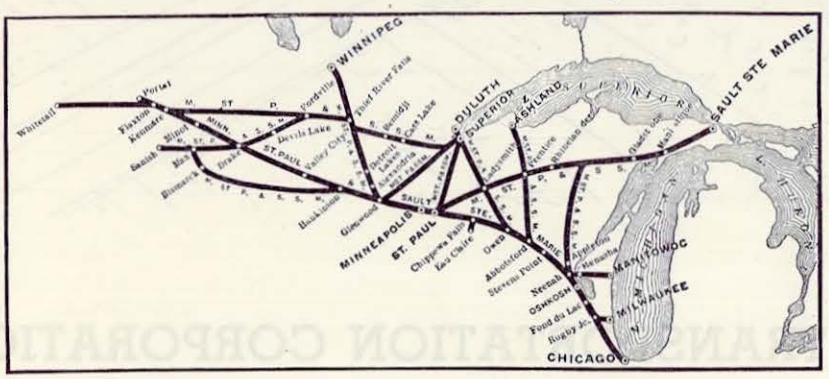
THE SOO LINE WILL BUY LIBERALLY if and when restrictions now hampering its success are lifted or changed so as to permit earnings to approach normal in its field. THE SOO LINE WILL PURCHASE thousands of items which would unquestionably add considerably to the recovery of the durable goods industry and, of course, national recovery of industry.

The Soo Line is eagerly awaiting the opportunity to be

IN THE MARKET



THE SOO LINE'S FREIGHT TERMINAL IN CHICAGO RANKS AS ONE OF THE WORLD'S GREATEST

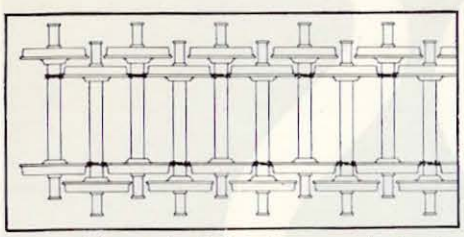


MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY COMPANY

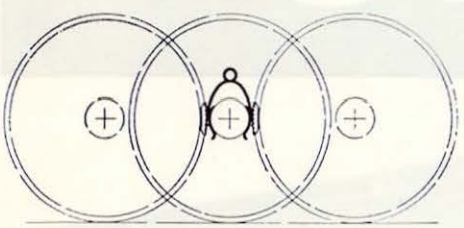
SOO LINE

Universal

CAR AXLE PROTECTOR



Section of flat car loaded with mounted wheels—Illustrating application of car axle protectors.



Enlarged view showing application of car axle protectors.

Prevents marking or cutting the axles of mounted wheels in transit from point to point while loaded on or in cars.

Marks and cuts from sharp flanges of wheels sometime **cause progressive cracks,** due to constant vibration in service.

Progressive cracks may develop into complete **failures of axles** and sometimes results are disastrous.

Eliminates intermediate blocking of loaded wheels.

UNIVERSAL DRAFT GEAR ATTACHMENT CO.

322 SOUTH MICHIGAN AVE., CHICAGO, ILLINOIS

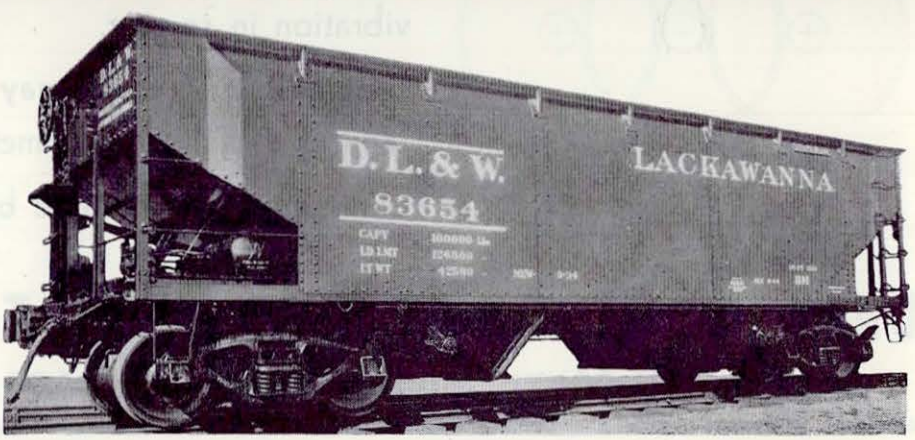
FREIGHT CARS are vital to the economic welfare of the country. They not only form the backbone of the nation's transportation—but their manufacture has been a powerful and stimulating influence on the durable goods industries. Freight cars haul and will continue to haul the bulk of the nation's business, especially long-haul freight. In normal years Class I railroads handled 2,350,000,000 revenue tons, requiring the construction of more than 100,000 new freight cars annually.

MAGOR

FREIGHT - BALLAST - AIR DUMP

CARS

Magor Air-Dump Cars and Ballast Cars make railroading more profitable because they reduce maintenance expense. These savings, when added to lower repair costs, due to Magor's high quality construction, pay for the cars in a few years. Restoration of normal purchasing power will enable the railways, by acquiring such money-saving cars, to give impetus to the movement for the restoration of national prosperity.



MAGOR CAR CORPORATION

50 Church Street New York

We, too, have been reducing

THE tendency to cut dead weight in railroad rolling stock has demonstrated its worth in many ways. Savings in ton-mile operating cost, both loaded and dead-head, are obvious.

In line with these lighter weight trends, American Hair & Felt Co. and Dry-Zero Corporation have developed new light weight insulating materials that are giving unexcelled efficiency with considerable saving in total poundage.

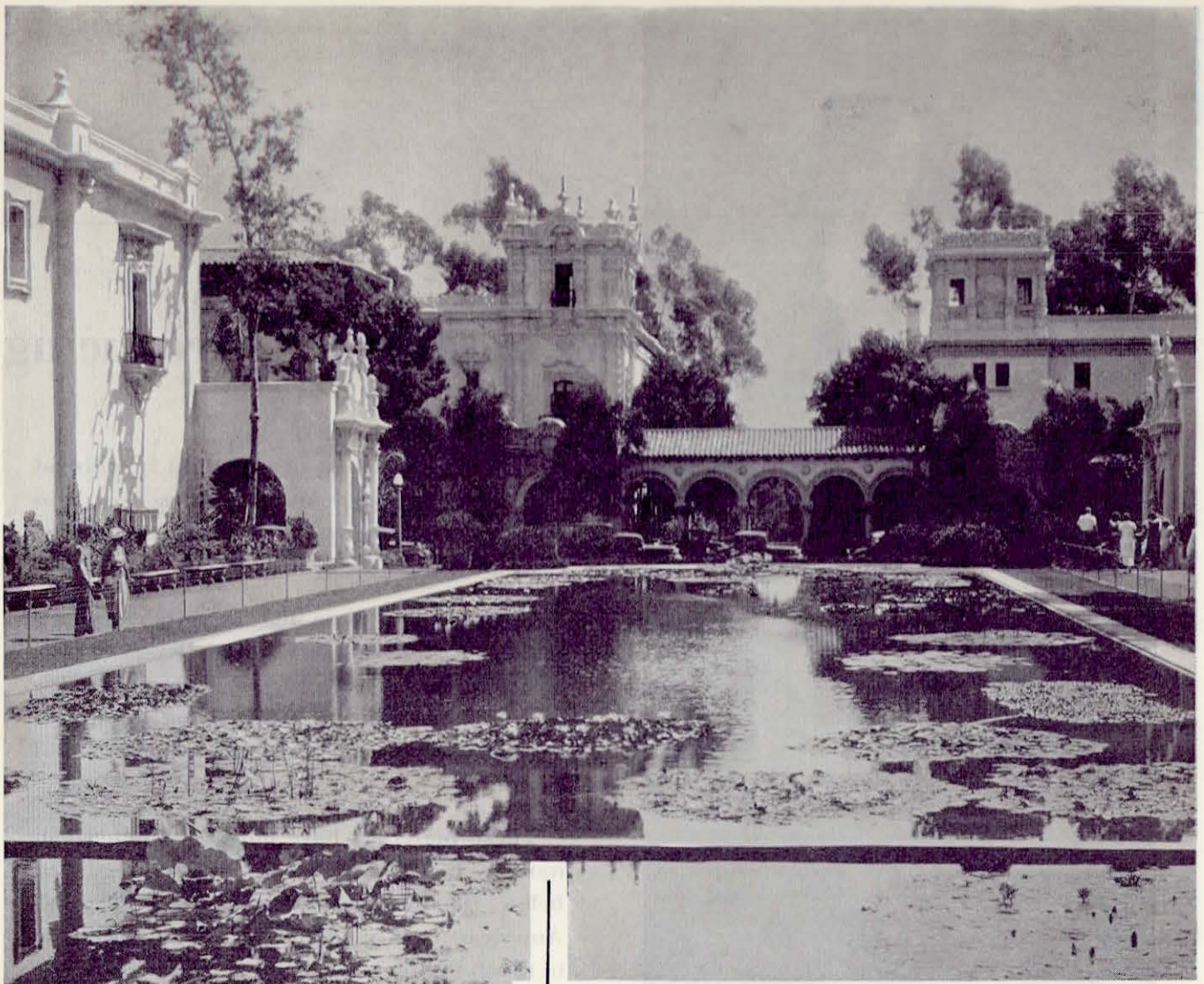
These materials have not been changed in name. But the well-known products listed below, that have been used in over 87% of all American and Canadian cars, are now available in much lighter weights. It will be worth while to communicate with our engineering department and learn how these improved insulation products can better serve you.

HAIRINSUL	Standard refrigerator car insulation
DRY-ZERO	The most efficient and lightest weight low temperature insulation known—standard for low temperature cars
SALAMANDER	For over 30 years the standard insulation for passenger cars
CARINSUL	Made especially for insulating the letter board of passenger cars
OZITE STANDARD HAIR FELT	Made by the genuine original platen or felted process and universally recognized as the highest standard of felted insulation

AMERICAN HAIR & FELT COMPANY—DRY-ZERO CORPORATION

(Railroad Division)

Merchandise Mart Chicago



here is mellow warmth

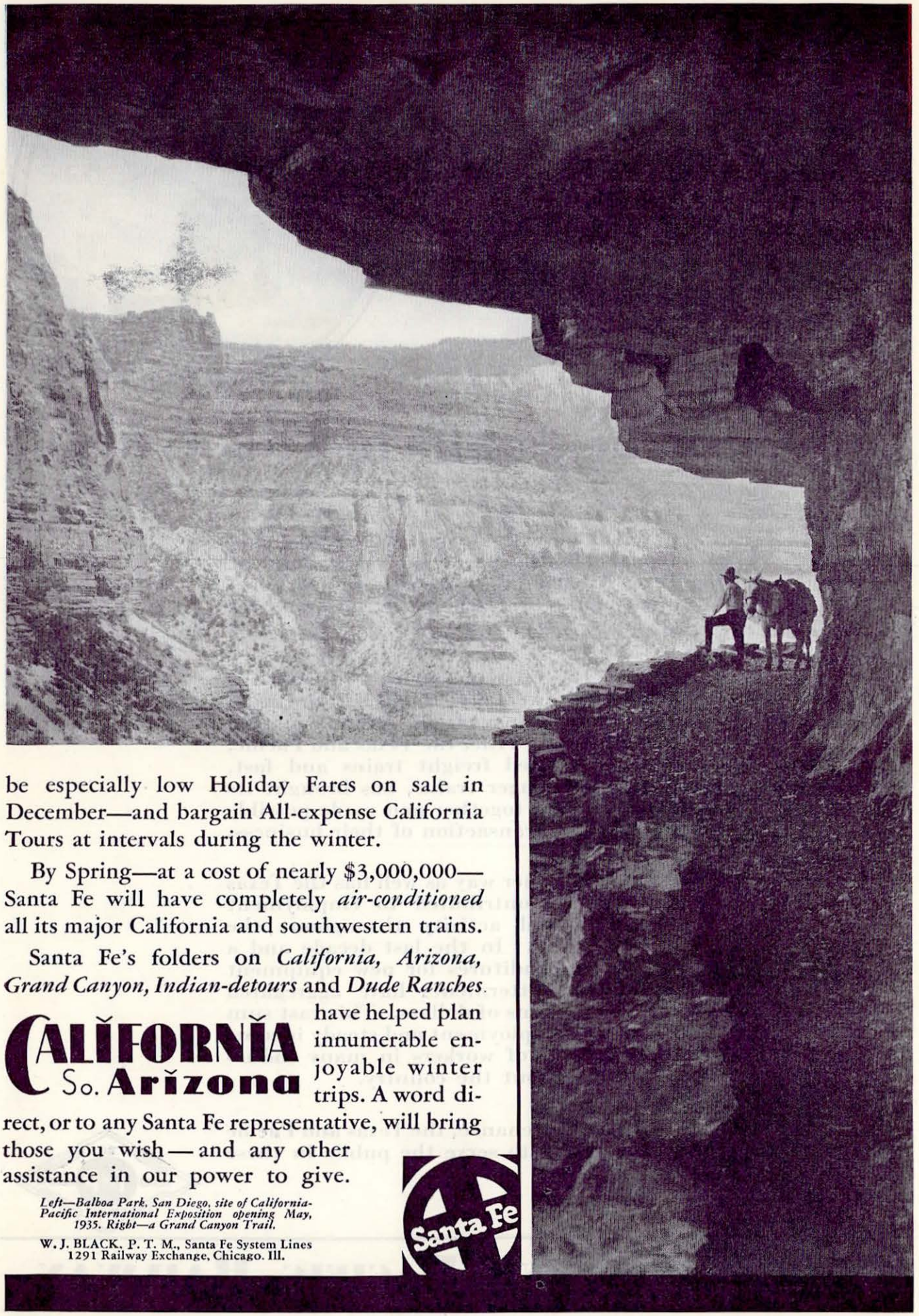
Each winter the *Santa Fe* carries a great many people to California and southern Arizona.

What do so many seek there, *in mid-winter?*

They seek mellow warmth. They go to *play* —along the blue sea, in the lazy hills, among the desert oases of a land made to enjoy, *out-of-doors,* all winter long.

Santa Fe winter service is swift and convenient to the California coast and Palm Springs; to Arizona's Phoenix and Grand Canyon; to New Mexico's Old Santa Fe—to all the Southwest.

Cost is the lowest in many years. There will



be especially low Holiday Fares on sale in December—and bargain All-expense California Tours at intervals during the winter.

By Spring—at a cost of nearly $3,000,000—Santa Fe will have completely *air-conditioned* all its major California and southwestern trains.

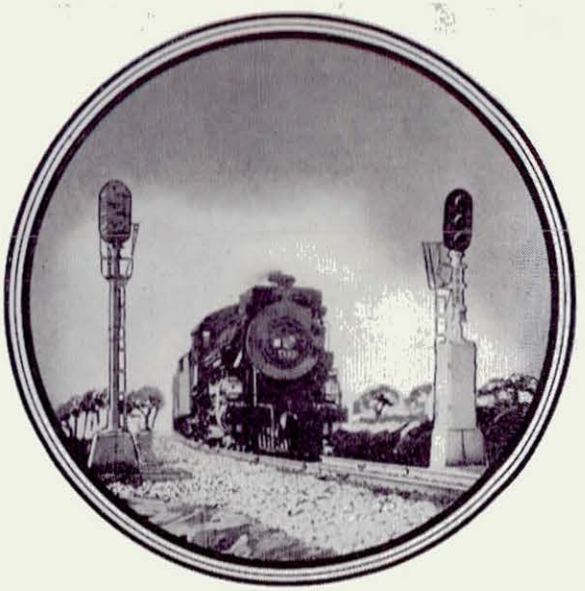
Santa Fe's folders on *California, Arizona, Grand Canyon, Indian-detours* and *Dude Ranches* have helped plan innumerable enjoyable winter trips. A word direct, or to any Santa Fe representative, will bring those you wish—and any other assistance in our power to give.

CALIFORNIA
So. Arizona

Left—Balboa Park, San Diego, site of California-Pacific International Exposition opening May, 1935. Right—a Grand Canyon Trail.

W. J. BLACK, P. T. M., Santa Fe System Lines
1291 Railway Exchange, Chicago, Ill.

Santa Fe



THE TEXAS AND PACIFIC

Serves the Public in Two Ways

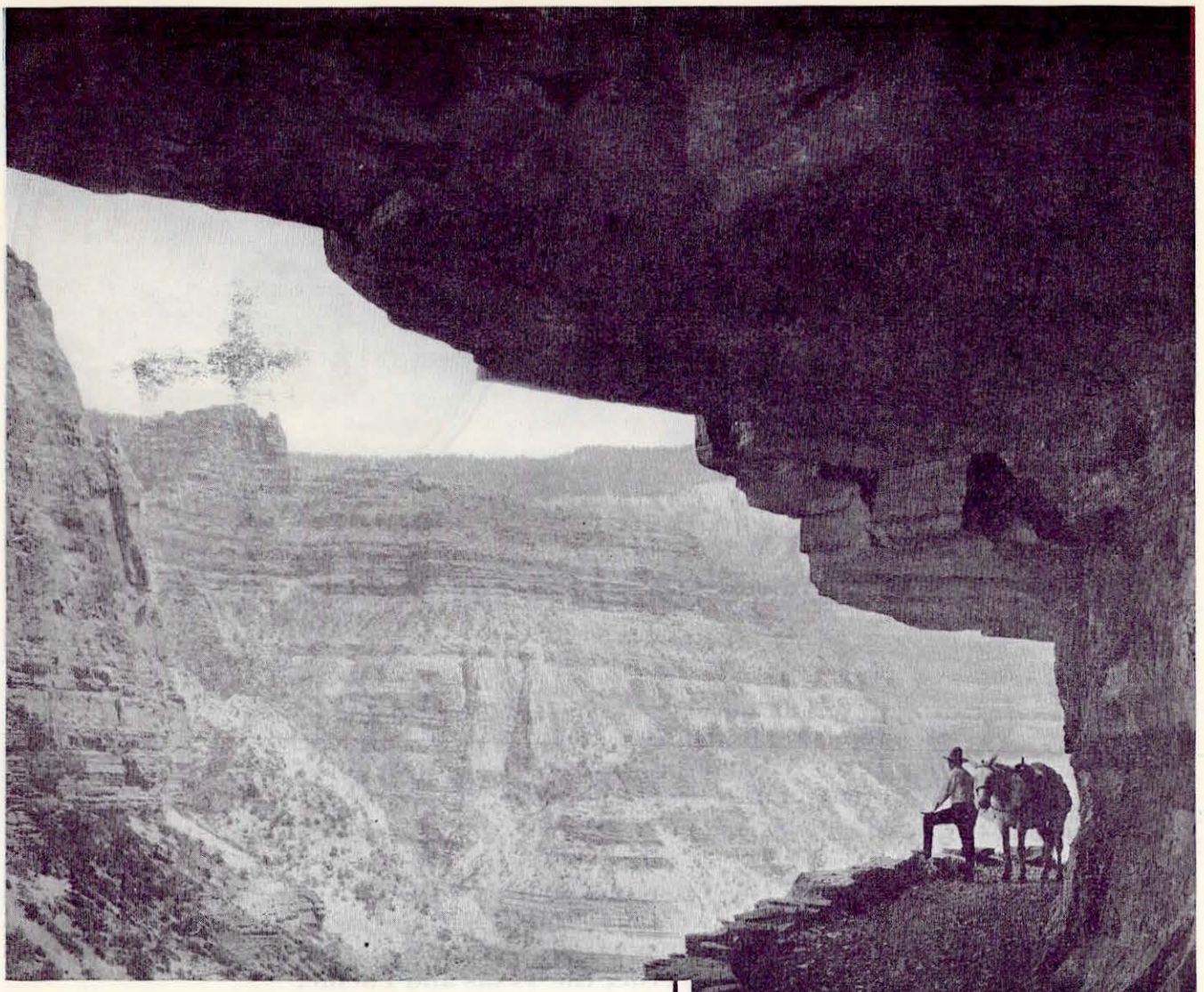
Not alone with its fast, convenient and dependable transportation service does the Texas & Pacific contribute to the advancement of the States and the Nation which it serves.

True, the existence of this railway has helped to convert a wild and barren region into a land of busy cities, fertile farms and rich oil fields. True, the Texas and Pacific, with high-speed freight trains and fast, modern passenger trains, has brought its patrons closer together and made possible the efficient transaction of their business.

But in another way as well has the Texas and Pacific contributed to employment and industrial activity throughout the United States. In the last decade and a half, its expenditures for new equipment and other betterments have aggregated some 75 millions of dollars. This vast sum has meant employment and steady income to thousands of workers in many industries throughout the country.

Given a fair chance, the Texas and Pacific will continue to serve the public in these *two* ways.

THE TEXAS AND PACIFIC RAILWAY



be especially low Holiday Fares on sale in December—and bargain All-expense California Tours at intervals during the winter.

By Spring—at a cost of nearly $3,000,000—Santa Fe will have completely *air-conditioned* all its major California and southwestern trains.

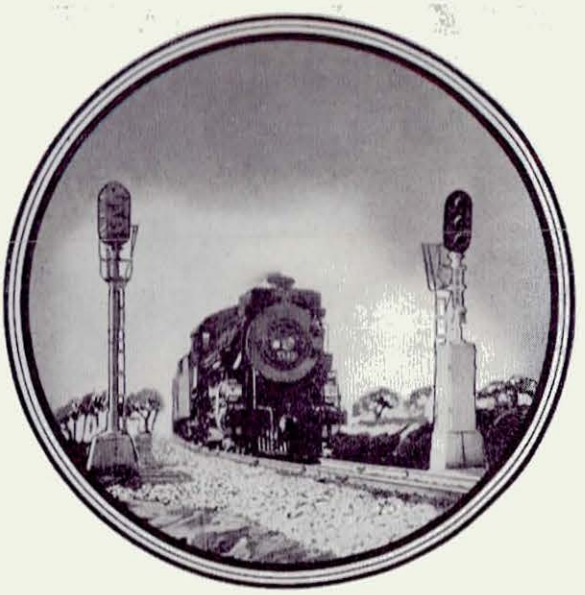
Santa Fe's folders on *California, Arizona, Grand Canyon, Indian-detours* and *Dude Ranches* have helped plan innumerable enjoyable winter trips. A word direct, or to any Santa Fe representative, will bring those you wish — and any other assistance in our power to give.

CALIFORNIA
So. Arizona

Left—Balboa Park, San Diego, site of California-Pacific International Exposition opening May, 1935. Right—a Grand Canyon Trail.

W. J. BLACK, P. T. M., Santa Fe System Lines
1291 Railway Exchange, Chicago, Ill.

Santa Fe



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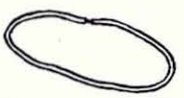
THE TEXAS AND PACIFIC RAILWAY

Sturtevant *buys*

REG. U.S. PAT. OFF.

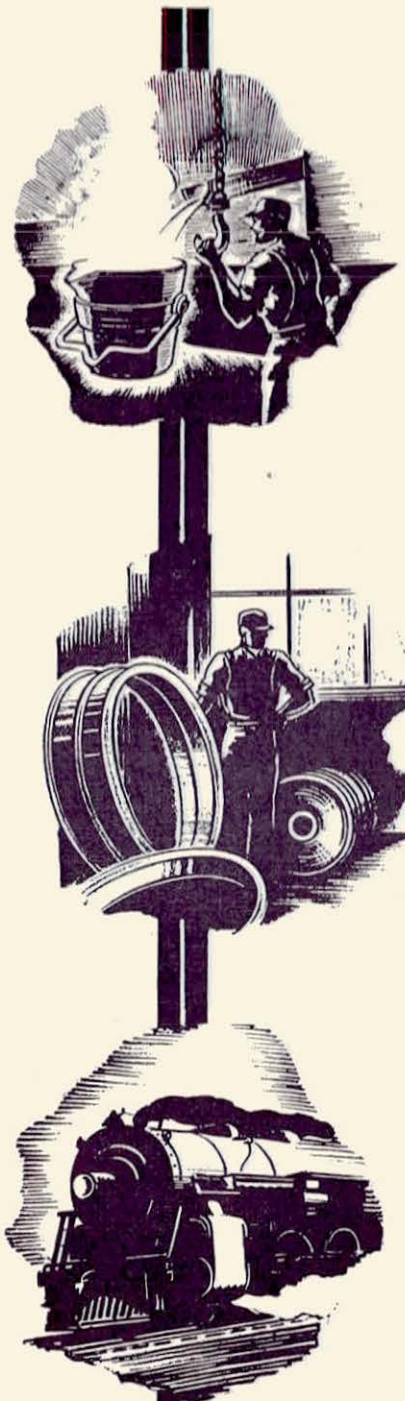
- ☑ MORE STEEL
- ☑ MORE COPPER
- ☑ MORE RUBBER
- ☑ MORE WELDING WIRE
- ☑ MORE BELTING 
- ☑ MORE BOLTS & RIVETS
- ☑ MORE PAINT
- ☑ MORE POWER
- ☑ MORE LABOR

Everytime *a railroad buys more Sturtevant Air Conditioning, Heating, Ventilating or Power Plant Equipment*

B. F. STURTEVANT CO., HYDE PARK, BOSTON, MASS.

Chicago, Ill., 400 North Michigan Ave. San Francisco, Cal., 681 Market St. *Branch Offices in Other Cities*

"Prosperous Railroads Spell Prosperity all Along the Line!"



When you see how we make our own steel to assure the quality of the product . . . . . .

When you see how we work the ingot into the finished part and heat-treat it to refine the structure and relieve internal strain . . . .

When you see how these parts stand up under the loads and speeds of modern service, you too will specify—

"STANDARD"

TIRES • STEEL WHEELS • AXLES
FORGINGS CASTINGS

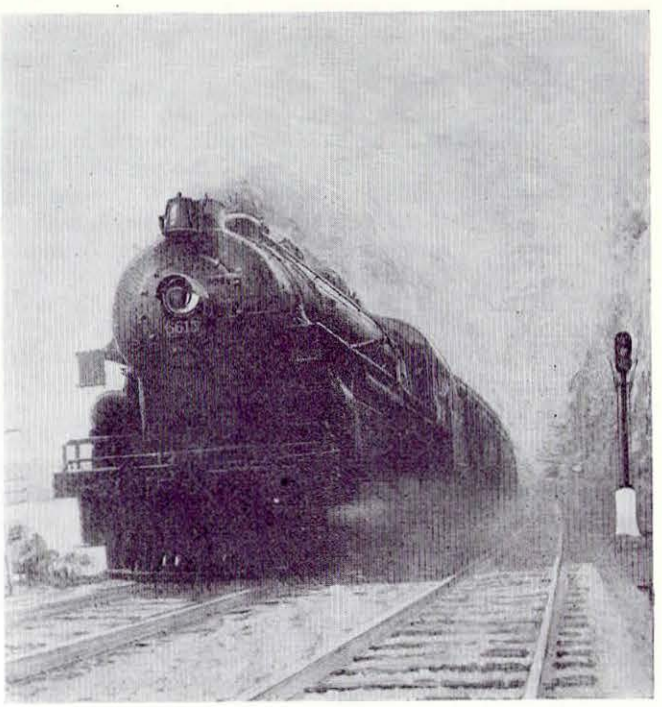
STANDARD STEEL WORKS COMPANY

SUBSIDIARY OF THE BALDWIN LOCOMOTIVE WORKS

GENERAL OFFICES & WORKS: BURNHAM, PA.

NEW YORK CHICAGO PORTLAND AKRON
PHILADELPHIA ST. LOUIS SAN FRANCISCO

THE MISSOURI PACIFIC LINES STATE THEIR CASE



THE Missouri Pacific is in bankruptcy. Unable to meet its fixed charges, it is being operated under a trusteeship in behalf of its creditors. These are facts known to all.

But there are other facts in the case of the Missouri Pacific Lines.

They still are the same great "Service Institution" that they have been throughout their history.

They still are performing an essential transportation task in the nine Southwestern states which they serve.

They still are strategically located to function most efficiently for their patrons.

They still are railroads made up of well-maintained tracks, modern equipment and adequate auxiliary facilities.

In a word, the Missouri Pacific Lines still are, despite everything, the kind of railroads they long have been —well-equipped, ably managed and ready to serve their patrons with transportation of the highest standards for themselves and their shipments.

More Traffic the Only Need

The only difference between the Missouri Pacific Lines of today and the Missouri Pacific Lines of five years ago lies in volume of traffic and in earnings. It would require only some more traffic to put the Missouri Pacific Lines once more firmly upon their feet, as they were only a short time ago. For the Missouri Pacific Lines are equipped and organized now to operate more effectively and more economically than at any time in the past.

Not just the security holders of the Missouri Pacific Lines have felt the effects of this want of a little more traffic. The same blow has been struck at people and industries throughout the Southwest, and over the entire country. The lack of more traffic on the Missouri Pacific Lines has meant hard times, unemployment in every state they serve.

The necessity for economy has compelled each railway to furlough many of its faithful employees.

In 1929, the Missouri Pacific Lines—the Missouri Pacific Railroad, the Gulf Coast Lines and the International-Great Northern Railroad and subsidiaries—gave employment to nearly 50,000 men and women. In 1934, they have employed an average of less than 30,000. The lack of traffic on the Missouri Pacific Lines has meant loss of jobs to 20,000 people—wage-earners—heads of families—in nine Southwestern states.

In 1929, the annual payroll of the Missouri Pacific Lines was nearly $82,000,000. In 1933, it was barely $42,000,000. The lack of traffic has meant the loss of $40,000,000 in one year to the merchants and tradesmen who depend upon Missouri Pacific Lines' payroll money for a substantial part of their business in all cities and towns along the lines of the railway.

While along its lines it is giving employment and fostering trade with its own payrolls, a railroad also creates employment and supports industrial activity at points remote from its tracks. It does this by means of its purchases of equipment, material and supplies. Naturally, railroads as large and intensely developed as the Missouri Pacific Lines are important purchasers from virtually all industries. These industries depend upon the Missouri Pacific Lines and other railroads for the orders with which to keep their plants going, for the money with which to maintain their payrolls.

In 1929, the Missouri Pacific Lines contributed to the industrial activity of the

country to the important extent of nearly $60,000,000—the amount of its purchases for that year. But when 1934 has ended, the Missouri Pacific Lines will have spent for the purchase of equipment and supplies only about $16,000,000. The lack of traffic on the Missouri Pacific Lines, therefore, has meant this year some $44,000,000 loss of business to the industries of the country. Little wonder that the durable goods industries still are so depressed. Little wonder that the problem of industrial unemployment has not been solved.

Why do not the Missouri Pacific Lines have the additional traffic which they need? The reason is not far to seek. Everyone knows that depressed business conditions throughout the country have been the principal cause of reduced railroad traffic and earnings. But the Missouri Pacific Lines could have sailed through the depression, had that been the only reason for their loss of business. These railways were in shape to weather that storm. But there has been another factor in the decline in Missouri Pacific Lines' business—another important reason for their lack of adequate traffic. That factor is competition on the highways and waterways parallel to the Missouri Pacific lines.

No Complaint Against Legitimate Competition

The Missouri Pacific Lines make no complaint against legitimate competition; they meet it. But not by any stretch of the imagination can the competition which the Missouri Pacific Lines have had from their highway and waterway competitors be called legitimate.

Legitimate competition would have some regard for the convenience and needs of the public before duplicating an existing and satisfactory service. The competitors of the Missouri Pacific Lines and other railroads, largely unregulated, operate largely when and where they please, chiselling such traffic as they can lay their hands upon and unmindful of the obligations of a public carrier.

Legitimate competition would fix its rates on a business basis, with a normal relation between prices and the cost of the service rendered. The competitors of the Missouri Pacific Lines and other railways fix rates a little lower than railway rates, whatever they may be. Legitimate competition would pay its own way, serving, not burdening, the public. The competitors of the Missouri Pacific Lines lean heavily upon subsidies, directly and indirectly, for the wherewithal of their existence.

The Missouri Pacific Lines do complain of the kind of competition which they have had from highway and waterway transportation. In a fair fight, they ask no favors. But this has not been a fair fight. The Missouri Pacific Lines still ask no favors. *They simply ask for the legislative action which will put competition in transportation on a fair basis.*

This is important to the Missouri Pacific Lines. Their waterway competitors tap their sources of traffic from St. Louis to the Gulf of Mexico. Their highway competitors operate on state or Federal Aid highways parallel to virtually every mile of the Missouri Pacific Lines' tracks. Competition as widespread as this cannot be ignored. Neither can it be deprecated. It is serious competition because it is this which has deprived the Missouri Pacific Lines of much additional traffic they need to bolster their payrolls and purchases. Thus, it is a serious matter not alone to the railways and their employees but to the thousands, even millions, of others throughout the country who look to these and other railroads for their livelihood.

Tragedy of Abandoned Lines

On some branch lines, the situation has been so acute that these have had to be abandoned and taken up. In 1934, the Missouri Pacific has had to abandon some 153 miles of line in Kansas alone. A tragic thing, this abandonment of railway lines. It means increased unemployment among railway workers. To the communities thus deprived of railway service, it means diminished trade, because of the loss of the railroad payroll; higher taxes, because of the loss of the railway's important tax contributions; and, in the end, it means inadequate transportation service and higher transportation costs.

The tragedy of the abandonment of a few hundred miles of railway lines may well be the tragedy of the abandonment of thousands of miles of tracks. For competitive conditions faced by the railways are intolerable. They cannot afford to continue to operate and to continue to pay high taxes on lines from which all but the poorest traffic has been taken. This is the alternative to the correction of today's unfair competitive conditions in transportation.

The Future Is Promising

Serious though the present situation is, the Missouri Pacific Lines cannot but look with courage and optimism toward the future. The position of this system is fundamentally sound. Operating in the states of Missouri, Illinois, Kansas, Nebraska, Colorado, Arkansas, Oklahoma, Louisiana and Texas, the 13,225 miles of Missouri Pacific Lines span and bind together one of the richest and most promising sections of the United States, with more than one-fourth of the nation's entire population. Strategically located, these lines provide direct links be-

tween St. Louis and the Pacific Coast over two routes, one via Pueblo and the Royal Gorge or Denver and the new Dotsero cut-off, and the other via El Paso; between Omaha, St. Joseph, Kansas City and St. Louis on the north and Memphis, Little Rock, Texarkana, Shreveport, New Orleans, Dallas, Ft. Worth, Houston, Galveston, and San Antonio on the south; between all these points, between the whole Middle Western and Eastern United States and the Republic of Mexico via two gateways, Laredo and Brownsville. No railroad could ask for a finer territory to serve.

Furthermore, the Missouri Pacific Lines are in good physical shape. Thanks to the determined program of improvements instituted eleven years ago, when the traffic demanding Missouri Pacific transportation was too much for the road in its condition at that time to handle, this railway has the low grades, the minimum curvature, the heavy rail, the best ballast and ties, and the additional track which mean a first class railroad, able to handle heavy loads and handle them expeditiously, efficiently and economically. This railway has the modern locomotives, passenger cars and freight cars with which to meet more than adequately the present day standards of speed, safety, dependability and comfort in passenger and freight transportation.

That this equipment is being maintained at highest modern standards is shown by recent announcement that all passenger carrying cars in all principal Missouri Pacific Lines trains will be air-conditioned by next summer. These cars total 193. Of these, 91 are railroad owned and the remaining 102 are Pullmans. The cost of the work is estimated at approximately $600,000. The railroad now has 35 air-conditioned lounge and dining cars which were placed in service on some of its principal trains during the last two years.

Finally, the Missouri Pacific Lines are confident that action will quickly be taken to eliminate unfairness from competition. It believes that a government which has taken action to insure fair trade practices in industry will pursue a constructive policy with respect to transportation.

Eager to Aid Recovery

The Missouri Pacific Lines are eager to aid in the program for national recovery. They already have made sacrifices to relieve distress in their territory. They have granted extremely low rates—rates which mean little or no profit to the railroad—on relief shipments of coal, cattle and feed, and commodities urgently required by a destitute people. In eight months of this year, the Missouri Pacific Lines sacrificed more than $200,000 in revenue by authorizing reduced rates on drought relief shipments alone. So will the Missouri Pacific Lines do their full share, when they are able, in helping with their purchases to revive the great durable goods industries. They will rehire their own people, sending an increased flow of payroll money into the cities and towns along its lines. They will purchase equipment and supplies, creating employment and business activity in their own home states and many others. Only one thing stands in the way—the lack of traffic. That additional traffic will come to the Missouri Pacific Lines when competition between themselves and carriers by highway and waterway has been put on a fair basis.

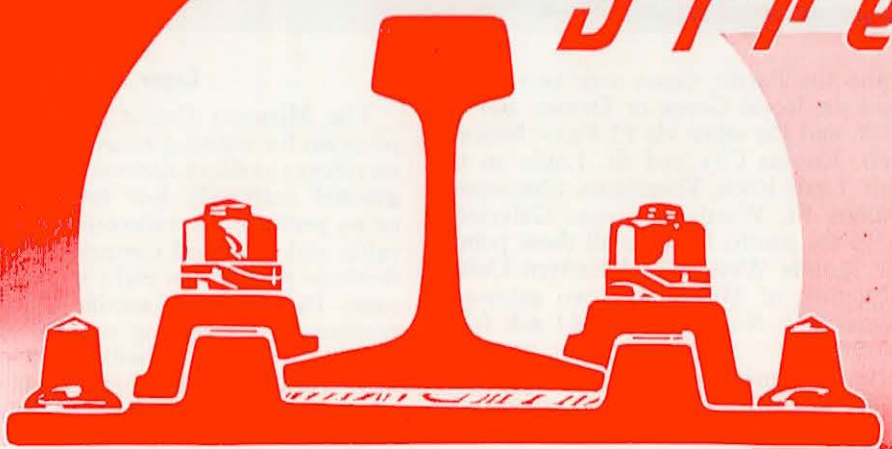
The history of the Missouri Pacific Lines is a story of triumph over adversity. These railways triumphed over the handicaps placed upon them during the period of Federal Control. They have triumphed over floods which have broken their lines in scores of places within the space of a few days. They have triumphed over drought which has prostrated great areas. Now, with modern fast freight service over all its lines, with unsurpassed passenger service, including the "Sunshine Special," the finest international train in the world and the "Scenic Limited" to the west, the Missouri Pacific is triumphing over the depression.

To put the Missouri Pacific Lines firmly on their feet, to enable them to become a factor of full importance in the relief of unemployment, only some more traffic is needed. Under fair conditions of competition, the Missouri Pacific Lines will get that traffic, and they will make the effect of their increased earnings, increased employing power and increased purchasing power felt from one end of the United States to the other.

MISSOURI PACIFIC LINES
Missouri Pacific Railroad
Gulf Coast Lines
International Great Northern Railroad

INSURE SAFETY..

Stream



GEO

CARNEGIE STEEL COMPANY

USS STEEL

SUBSIDIARIES OF UNITED

PITTSBURGH · PA.

.SMOOTH RIDING

lines your track

Streamlining is the order of the day, claiming the attention of design engineers in every phase of transportation. In the railroad field the development of stream-lined, high-speed, light-weight motive power and rolling stock must be accompanied by similar improvement in track construction. Higher standards of gauge, line and surface will be necessary, which, under present track construction practices, would entail exorbitant maintenance costs.

Fortunately GEO is here . . . waiting to put your track a step ahead of progress. Installations of GEO track have demonstrated its safety, its smooth-riding qualities, its accurate alignment and its low maintenance costs. Can you afford to ignore the possibilities of this newer construction? Substantiating data is yours for the asking.

THE LORAIN STEEL COMPANY

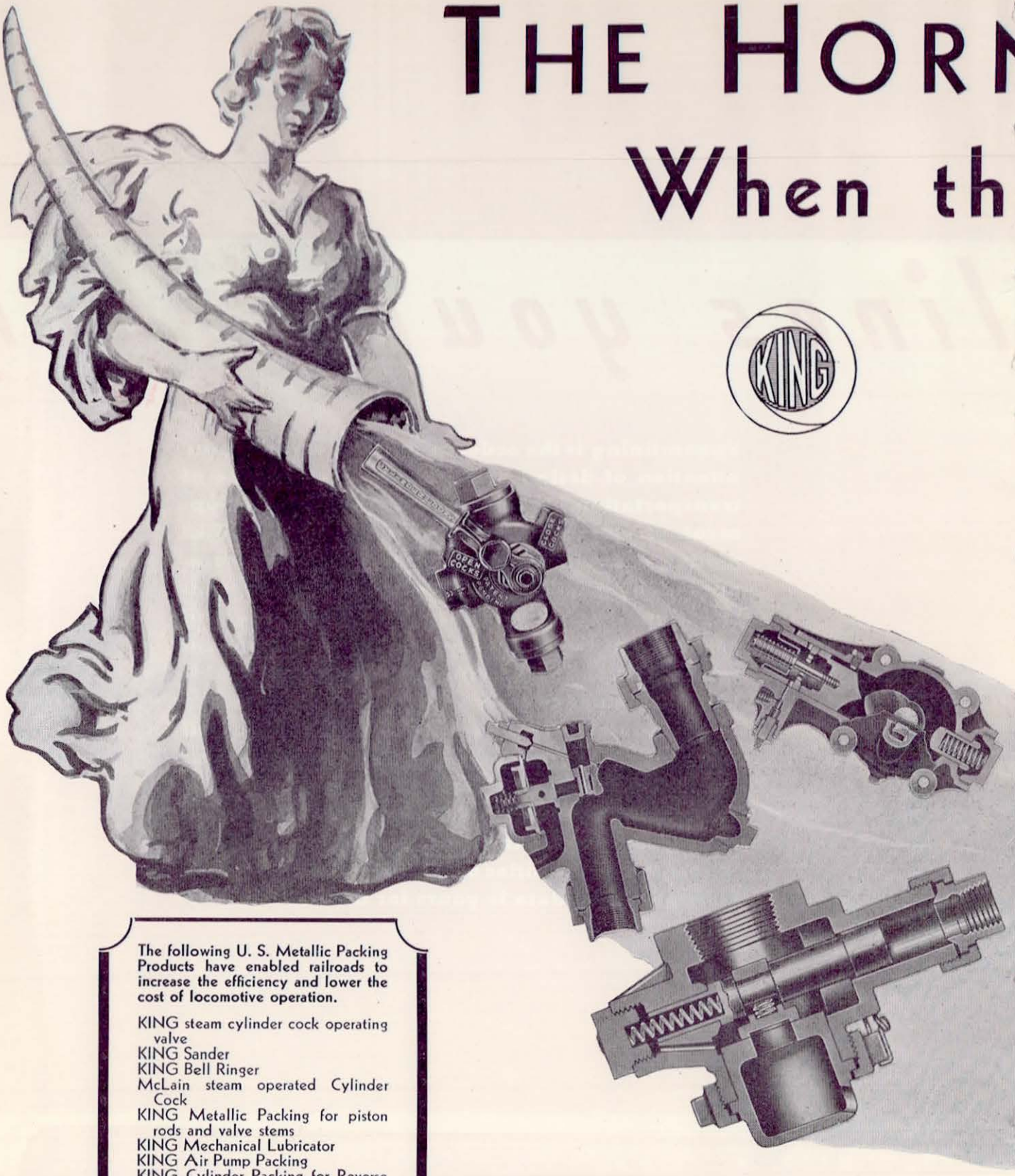
STATES STEEL CORPORATION

JOHNSTOWN • PA.

THE HORN

When th

KING



The following U. S. Metallic Packing Products have enabled railroads to increase the efficiency and lower the cost of locomotive operation.

KING steam cylinder cock operating valve
KING Sander
KING Bell Ringer
McLain steam operated Cylinder Cock
KING Metallic Packing for piston rods and valve stems
KING Mechanical Lubricator
KING Air Pump Packing
KING Cylinder Packing for Reverse Gears

THE U. S. METALLIC

PHILADELPHIA

OF PLENTY FLOWS

Railways are Buying —

In fact $2,000,000,000 of materials and supplies flow into the railways in normal times giving employment to millions in the durable goods industries.

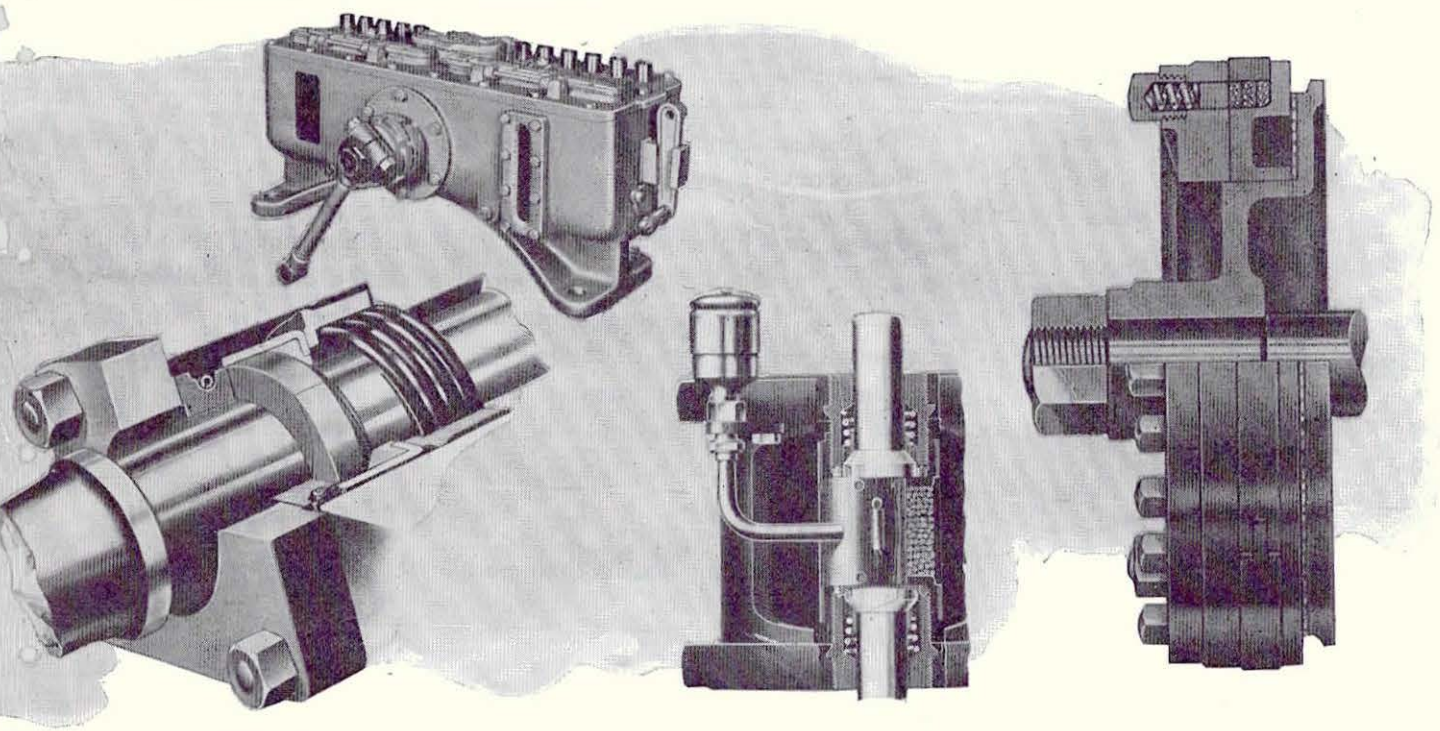
But now with railway earnings and purchases restricted by over-regulation, over-taxation and subsidized competition, the flow of railway orders has dried up to practically a dribble amounting to a mere 15 per cent of normal purchases with the result that millions have lost their jobs in the durable goods industries.

Before this nation can pull itself out of the depression, the business pumps must be primed to restore a full head to railway purchases.

National and State Legislators can prime these pumps with sound and constructive measures which will restore railway earnings, revitalizing this 26 billion dollar industry with a productivity which will keep the horn of plenty flowing without artificial and costly stimulation.

The railways need help—they have been operating under tremendous odds and despite increased efficiency and careful economies, their earnings have failed to yield a sufficient return to provide for maintenance of plant and equipment.

The railways do not ask for any special privilege, but it is perfectly obvious that they should be given full opportunity to maintain themselves and that should not be denied.



PACKING COMPANY

PENNSYLVANIA

THE KEY TO RECOVERY

Of the fifteen million persons normally employed in this country in the mining, manufacturing and machine industries, about ten million, or two-thirds, are engaged in the production of durable as distinguished from consumption goods.

Owing to the enormous reduction in the demand for durable goods, nearly half of the ten million workers normally engaged in making such goods are out of employment. If these persons could be put back to work the unemployment in this country would practically cease, because another five and a half million persons are out of employment in consumption and service industries mainly because of the non-employment in the durable goods industries.

Restoration of normal markets for durable goods is the key to any further recovery.

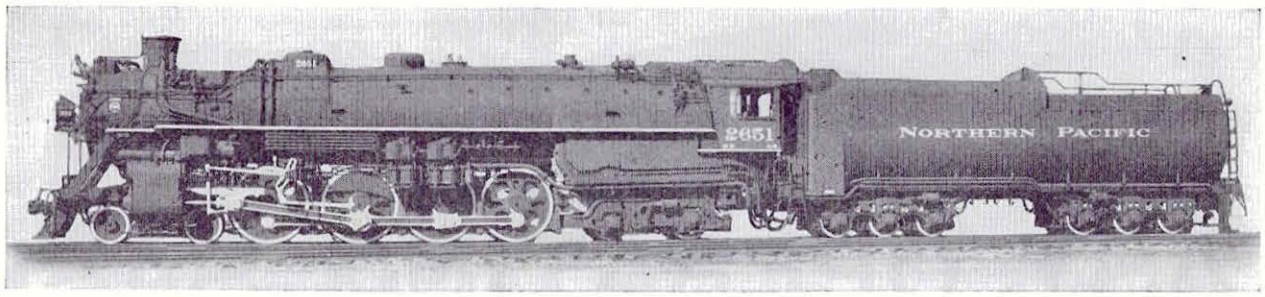
To restore a normal market for durable goods requires reasonable costs and reasonable prices; progressive design and a quickened perception of the advantage of substituting modern for obsolete equipment on the part of the user; and the restoration by proper Government policy of financial confidence and stability, so that private and corporate savings will again be induced to flow into the purchase of such goods.

The Baldwin Locomotive Works and its subsidiary and affiliated companies are trying to do their part in restoring a normal market for durable goods.

THE BALDWIN

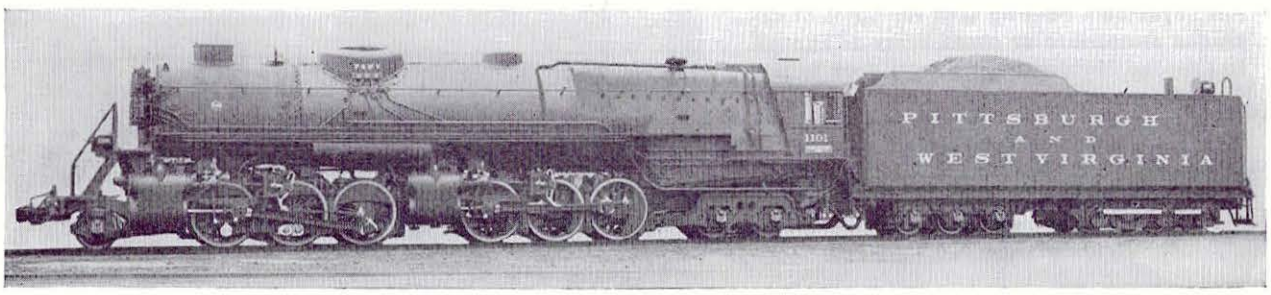
INDUSTRIES OF 32 STATES

would profit from the building of more locomotives such as these



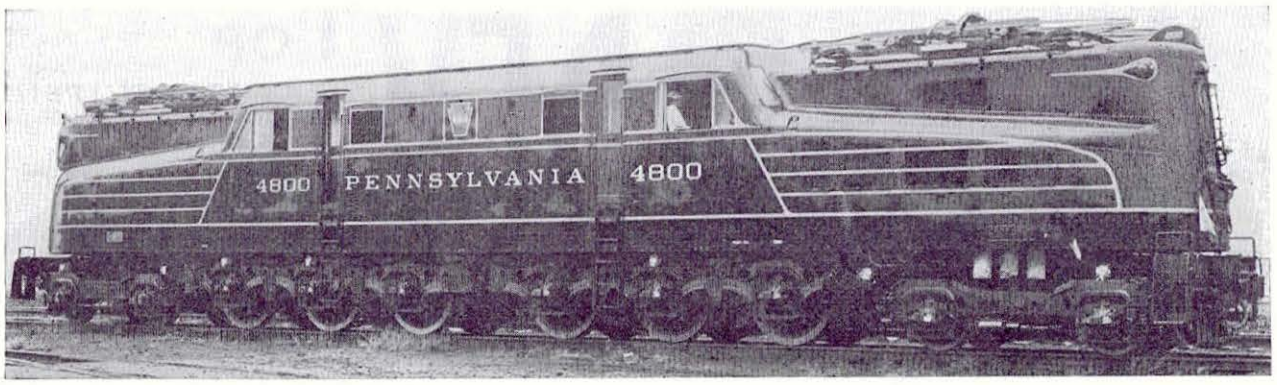
One of ten modern passenger locomotives now under construction for the Northern Pacific

1934



Heavy Power for Hauling Coal Trains on the Pittsburgh and West Virginia

1934



Electric locomotive for passenger service. The Pennsylvania Railroad has recently ordered 57 duplicate locomotives, the chassis for 25 of which will be built by Baldwin

1934

LOCOMOTIVE WORKS

PHILADELPHIA

Free working sash in extruded aluminum or bronze

Operates in free space

No friction

No vibration

YET weathertight

Light weight

Economical

Safe

EASY OPERATING SASH

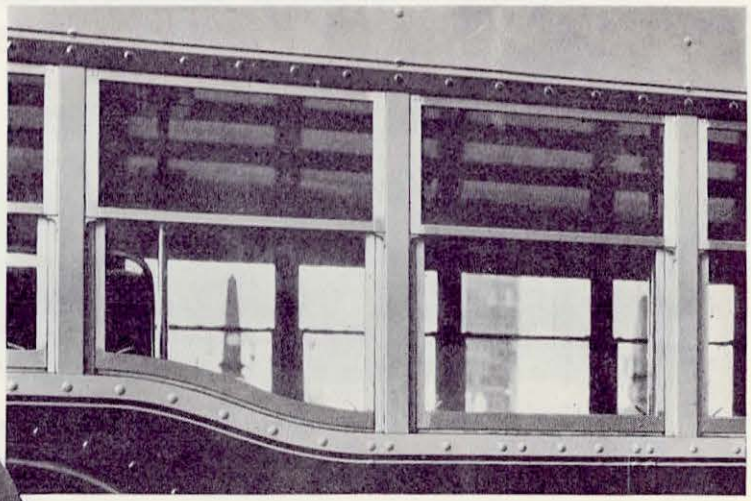
that are weathertight

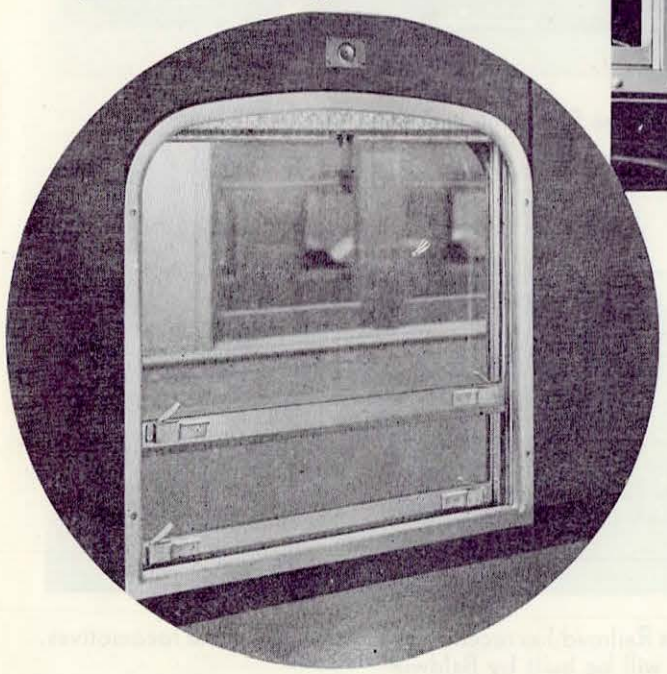
To the right:

Rex adjustable floating sash for buses of extruded aluminum or sheet brass as applied to Chicago Motor Coach double deck buses.

Below:

Rex extruded aluminum sash applied to C. M. St. P. & P. Ry. Co. cars. Easy to operate and weathertight.





REX

TOP WEATHERSTRIPPING

SIDE WEATHERSTRIPPING

BOTTOM WEATHERSTRIPPING

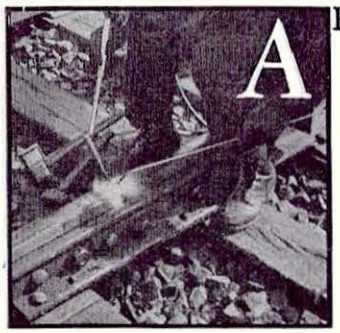
FOR RE-CONDITIONED CARS

THE ADAMS AND WESTLAKE COMPANY

ELKHART, INDIANA

CHICAGO NEW YORK

Give the Rail A Chance



ARE you going to install new rail and give it the same type of hard usage it received during the lean years?

The oxy-acetylene process offers you an opportunity to give the rail a chance; let it live a longer life.

If you decide to lay new rail, make provisions to extend its life by scientific hardening of the rail-ends by the Oxweld Process.

Or, if you decide to let the old rail carry on still further, take advantage of oxy-acetylene welding for the repair and rebuilding of rail ends, frogs, switch-points and crossings.

These two are only a few of the many applications of the oxy-acetylene process for production, repair, and maintenance work which your road can use to advantage.

Aided by the finest laboratory resources available, which are in turn confirmed in every instance by extensive testing through actual railroad practice all over the country and under every possible condition, the most modern developments of the oxy-acetylene process are made available through the service of The Oxweld Railroad Service Company. The Class I railroads of the country appreciate the fact that through this means only can they get this outstanding and progressive service as is evidenced by the fact that the majority of them have been listed for many years as contract customers.

OXWELD RAILROAD SERVICE

THE OXWELD RAILROAD SERVICE COMPANY

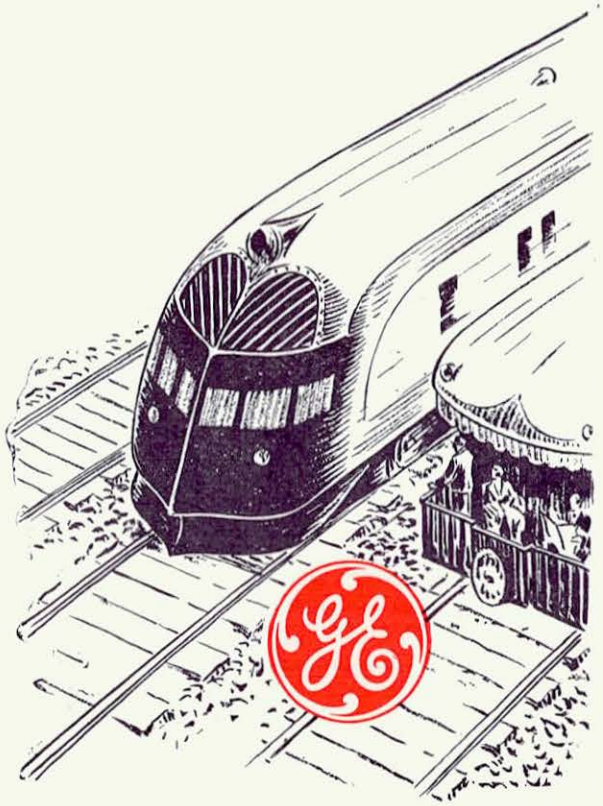
Unit of Union Carbide and Carbon Corporation

NEW YORK: Carbide and Carbon Bldg. UCC CHICAGO: Carbide and Carbon Bldg.

NRA CODE

We want to help

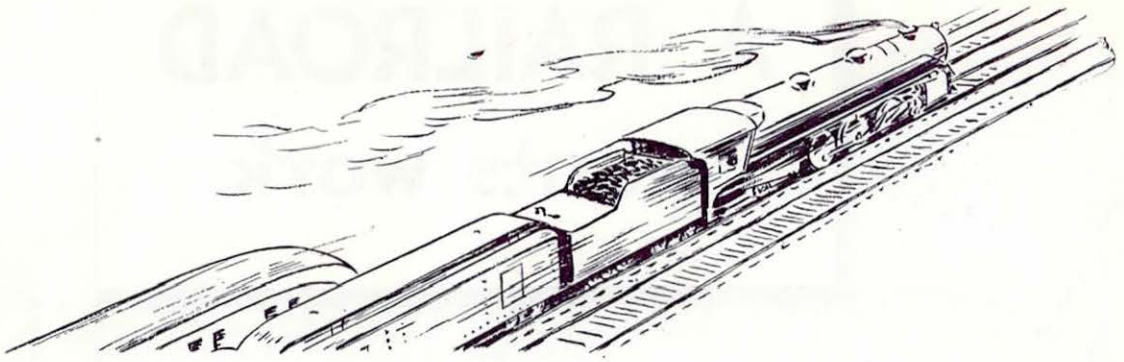
GENERAL ELECTRIC is concerned with practically every phase of the railroad industry. Its widely diversified products—from lamps to locomotives—can help the railroads to effect important economies in both the operation and maintenance of their rolling stock and other equipment.



Improvement of the railroads' net operating income will do more than just enable them to modernize their plants and obtain the benefits of more reliable, more economical equipment. It will mean the purchase of durable goods, which in turn will stimulate business recovery. Through increased manufacturing activity in General Electric plants, these purchases will benefit many communities.

As stated by General Electric in *Railway Age* two years ago, "The people of this country should not withhold from the railroads their right to meet the complicated transportation problems of the present day with present-day facilities." General Electric Company, Schenectady, N. Y.

GENERAL



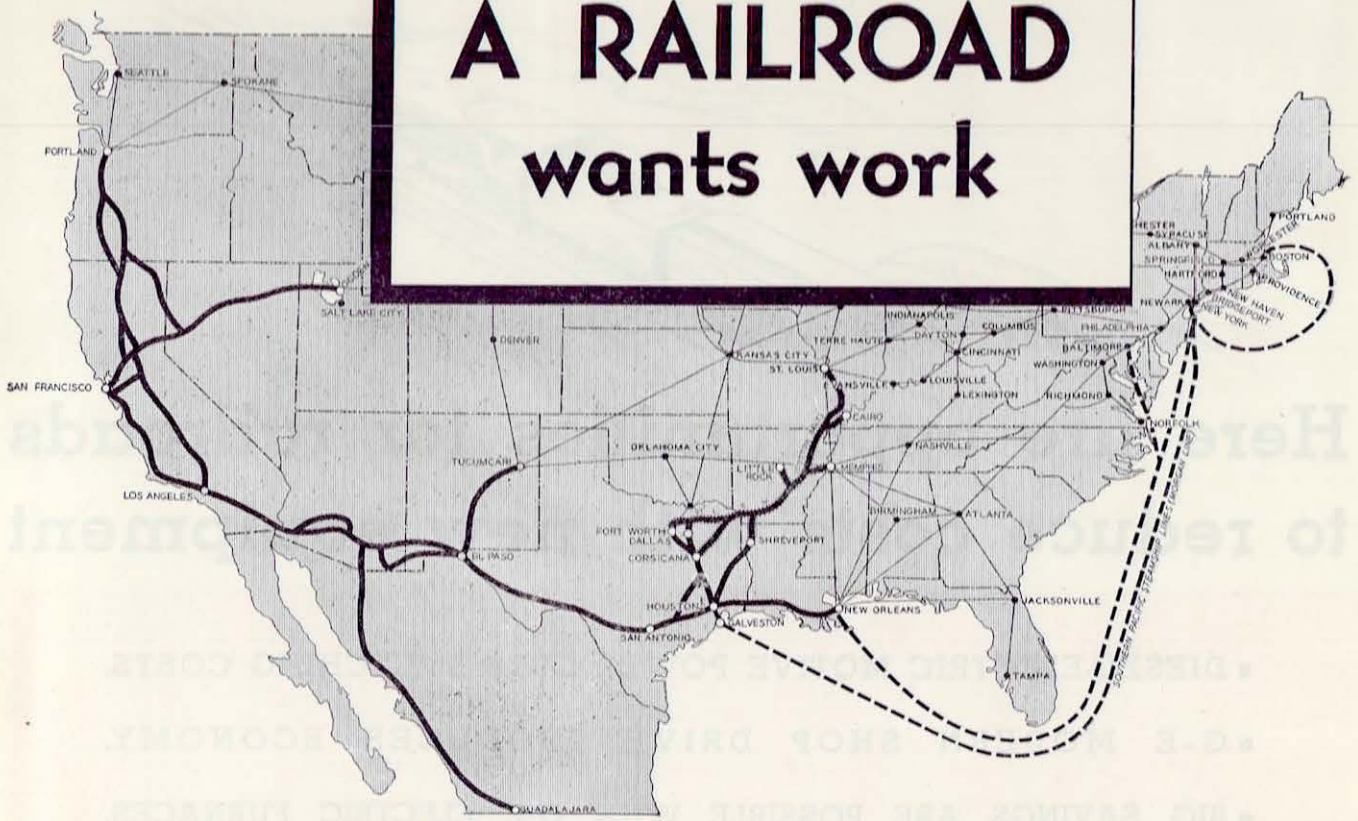
Here are opportunities for railroads to reduce costs with new equipment

- DIESEL-ELECTRIC MOTIVE POWER CUTS SWITCHING COSTS.
- G-E MODERN SHOP DRIVE PRODUCES ECONOMY.
- BIG SAVINGS ARE POSSIBLE WITH G-E ELECTRIC FURNACES.
- G-E ARC WELDERS MAKE SAVINGS IN TRACK MAINTENANCE.
- G-E FLOODLIGHTING OF YARDS SPEEDS UP NIGHT SWITCHING.
- POWER-FACTOR IMPROVEMENT REDUCES ELECTRIC POWER BILLS.
- G-E MOTOR DRIVE SPEEDS CARGO HANDLING.
- G-E EQUIPPED TURNTABLES HELP SAVE LOCOMOTIVE TIME.
- G-E GEAR-MOTORS REDUCE THE COST OF SHOP POWER.
- ELECTRIC DRIVE CAN REDUCE BALLAST-CLEANING COSTS.
- ELECTRIC TRUCKS SPEED FREIGHT AND BAGGAGE HANDLING.
- G-E AIR CONDITIONING HELPS BUILD PASSENGER TRAFFIC.
- G-E SHOP TURBINES MAKE STEAM DO DOUBLE DUTY.
- MODERN G-E LIGHTING EQUIPMENT SOON PAYS FOR ITSELF.

96-86

E L E C T R I C

A RAILROAD wants work



SOUTHERN PACIFIC, a two billion dollar company, one of the ten largest industrial concerns in the country, a railroad with more miles of line than any other in the United States, may be likened to a giant—a friendly giant—whose capacity for helpfulness to his neighbors is limited only by the amount of work he has or is permitted to do. For this railroad, like other railroads, not only serves the public in providing transportation for persons and for goods, but also is an important factor in community welfare through its expenditures for labor and for materials and supplies. The more work this giant obtains—that is, the more freight and passenger traffic—the greater the employment, the greater the payroll expenditures, and the larger the volume of purchases of all the materials and supplies needed in the operation of a railroad.

Southern Pacific, like other businesses, has suffered from the effects of the depression. But, with other railroads, it has lost a great amount of traffic from causes not related to the abnormality of the times. These causes lie in inequalities of public regulation as between the railroad and other forms of transportation, in the more favorable public treatment accorded these other forms of transportation, and the handicap which existing legislation has placed on the railroad in meeting water and highway competition. As a result of this situation Southern Pacific's traffic has decreased in far greater proportion than the general business situation should warrant, and its purchasing power has so declined that the territory it serves has lost the economic stimulus that Southern Pacific's normal purchases and payroll would give.

What is Southern Pacific?

A pioneer of transcontinental railroads and has still pioneered through modern times—witness the Natron cut-off in Oregon; the construction of a second main line through Phoenix, Arizona; the heavy construction in Mexico to complete a route down the West Coast of Mexico.

A company operating 16,433 miles of rail line and 6,250 miles of steamship line, its rail line serving eight states—Oregon, Nevada, Utah, California, Arizona, New Mexico, Texas and Louisiana. Its acquisition of the St. Louis Southwestern Railway Company (the Cotton Belt) adds 1,811 miles of line and three more states—Illinois, Missouri and Arkansas to the territory served. The seaports of three other states, Maryland, New York and Massachusetts are served by the Company's steamship lines. So Southern Pacific with the Cotton Belt, serves 14 states comprising 41.3 per cent of the total area of the United States.

A company that provides transcontinental service from the Atlantic to the Pacific via its rail lines and its steamships from Gulf ports to Atlantic ports. The Company also operates the longest north and south line in America, 2,914 miles, from Portland, Oregon, to Guadalajara, Mexico.

A company that provides four main routes for transcontinental passenger travel, with a network of local lines in California, Texas and Louisiana.

A company owned by about 55,000 stockholders and employing approximately 100,000 men and women in normal times. An adjacent table shows how payroll expenditures have shrunk in recent years.

A company that has endeavored to promote the prosperity of its territory through cooperation in the promotion efforts of civic, state and regional organizations. It has come to community relief in times of catastrophe. The story of how Southern Pacific redeemed the Imperial Valley from the Colorado River in the same year that it rendered great service to fire-stricken San Francisco is a part of California's history.

What is Southern Pacific doing?

Southern Pacific has kept pace with the times in improvements of service, additions to its facilities and in extending its lines to meet the needs of its territory. It has done this when business generally was booming but when railroad traffic did not gain accordingly due to the inequalities of competition already referred to. The last four years, since 1929, are a test of progressiveness and courage. What has Southern Pacific been doing? Here are some examples:

In freight service

Coordinated rail and truck operations through an extensive pick-up and delivery freight service.

Has expedited the gathering of perishable shipments at con-

centration points, thus in effect cutting the time in transit of perishables from the fields to the markets.

With connecting lines has cut one day from the Auction Delivery of perishables in Chicago.

Has provided fast merchandise service, including overnight freight service between important centers and points in tributary territory. Overnight service on passenger schedules has been operated most successfully between Los Angeles and San Francisco.

Has continued to improve "on time" performance. In 1933 Southern Pacific hauled over 20,000 "LCL" merchandise cars from Eastern territory to the Pacific Coast and 97.98% arrived at destination on time. Since these cars moved in the same trains as carload freight, it is evident that the latter, too, was well handled.

The "Blue Streak" operated by the Cotton Belt, and widely known as "the fastest freight train in America," is an example of railroad energy in providing fine service and in meeting the stresses of present conditions. This train connects St. Louis, Memphis, Little Rock, Texarkana and Shreveport with overnight service. This train maintains an overall speed of approximately 40 miles per hour.

In passenger service

Has reduced fares and made many experiments in fares to meet necessities of pocketbooks and desires. Has pioneered in coach fares. The Company's tariffs are a record of efforts to *create* traffic.

In 1934 completed an extensive program for air-conditioned cars in its leading trains. The year 1935 will see all the Company's principal trains air-conditioned throughout.

Has provided improved equipment of various types not only for the first class passengers but also for those in coaches.

Has constantly improved its dining car service, developed popular specialties on the menus, and attracted popular attention through its dining car "Meals Select" at prices ranging from 80¢ to $1.25 for luncheons and dinners, 50¢ to 90¢ for breakfasts.

Has worked steadily to arrange its passenger train schedules to meet the preferences of the traveling public. Many schedules have been shortened.

A matter of fair play

Inequality of regulation and taxation as between highway carriers and the railroad, together with the practical subsidy given its highway competitors by their being furnished a roadbed free of charge, has been one large factor in shrinkage of railroad traffic. This situation is one that deserves the careful and constructive attention of the public and its representatives.

Of paramount importance at the present time in the battle of the rail lines to maintain their existence, is the necessity for modification or repeal of Section Four of the Interstate Commerce Act, better known as the "long and short haul clause," which prevents Southern Pacific and other roads from establishing competitive rates with subsidized steamship companies using the Panama Canal in Intercoastal traffic.

The ability to make such rates would enable Southern Pacific to carry a large amount of traffic which would pay operating costs and contribute toward the overhead costs borne by the traffic that is moving now. If such rates were permitted, coastal cities would benefit from having available fast freight service at rates approaching those of the Canal lines, while interior points would benefit from the increased employment, and the increased amounts spent for materials and supplies. Had Southern Pacific been able to make such rates, millions of dollars more would have been spent in the territory along its lines between East and West in the lean years since 1929, and this estimate is based not on the amount of traffic moving by steamship through the Canal in 1929 or prior thereto, but on the basis of traffic that has so moved since 1929. And the intermediate territory would lose nothing through giving the railroad opportunity to share in the traffic now moving through the Canal, but on the other hand would be materially benefited.

This condition is of concern, not only to railroad stockholders and employes, but to thousands of industrial concerns.

The situation is becoming more critical daily. Most of the intercoastal traffic moving by water has been non-perishable in character but with the perfection of the refrigerated ship railroads are threatened with the further loss of important revenue-producing traffic, a traffic that has been built up and fostered by the roads through fast schedules and diversion privileges. And with the further weakening of the railroads' financial condition, the efficiency of perishable freight service to mid-West points, for example, would necessarily be impaired.

IMPORTANT TO THE PUBLIC

Railroad expenditures are an important factor in employment and the country's economic welfare. The less traffic the less the expenditures. The following round figures on total expenditures of Southern Pacific and the St. Louis Southwestern (Cotton Belt) are of importance to the public:

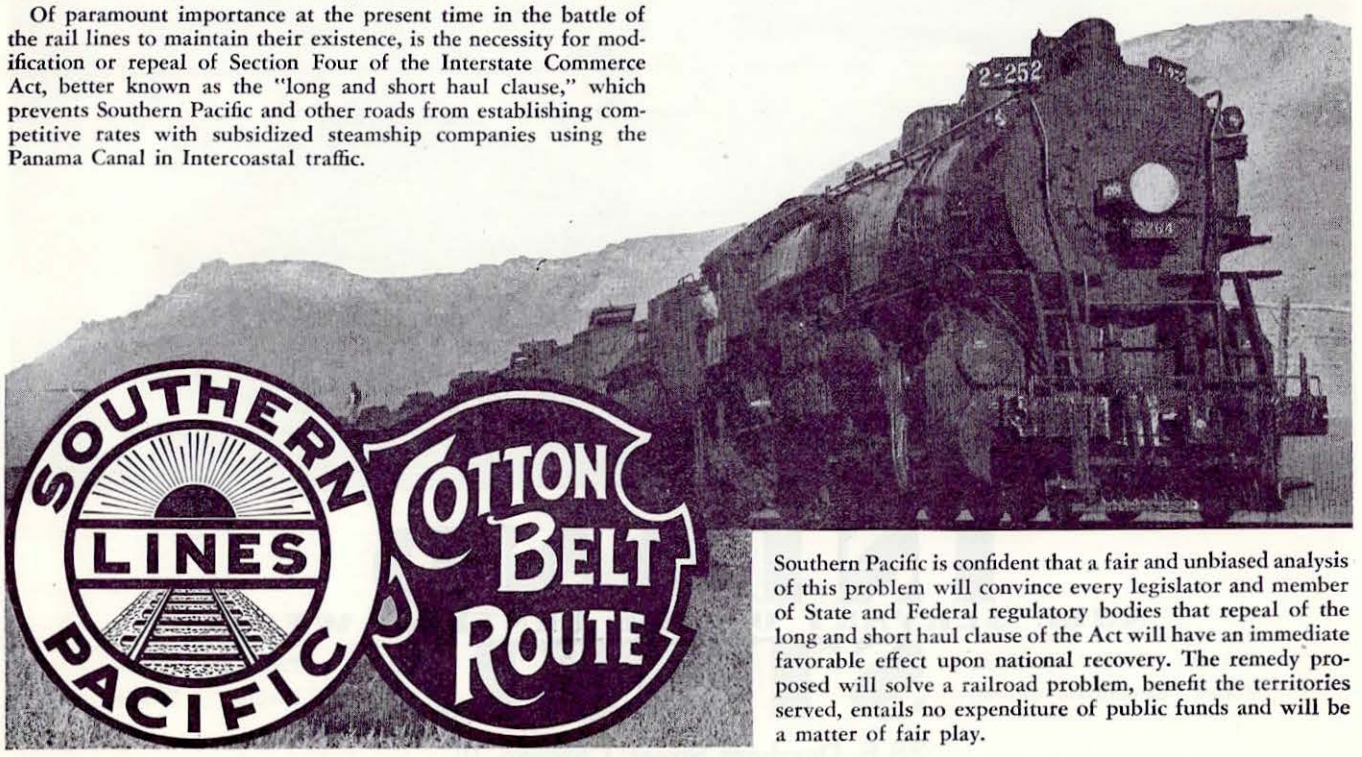
In 1929 total expenditures for materials and supplies were $70,000,000.

In 1933 expenditures for the same purpose were $16,000,000.

In 1929 total payroll expenditures were $161,600,000.

In 1933 payroll expenditures were $72,700,000.

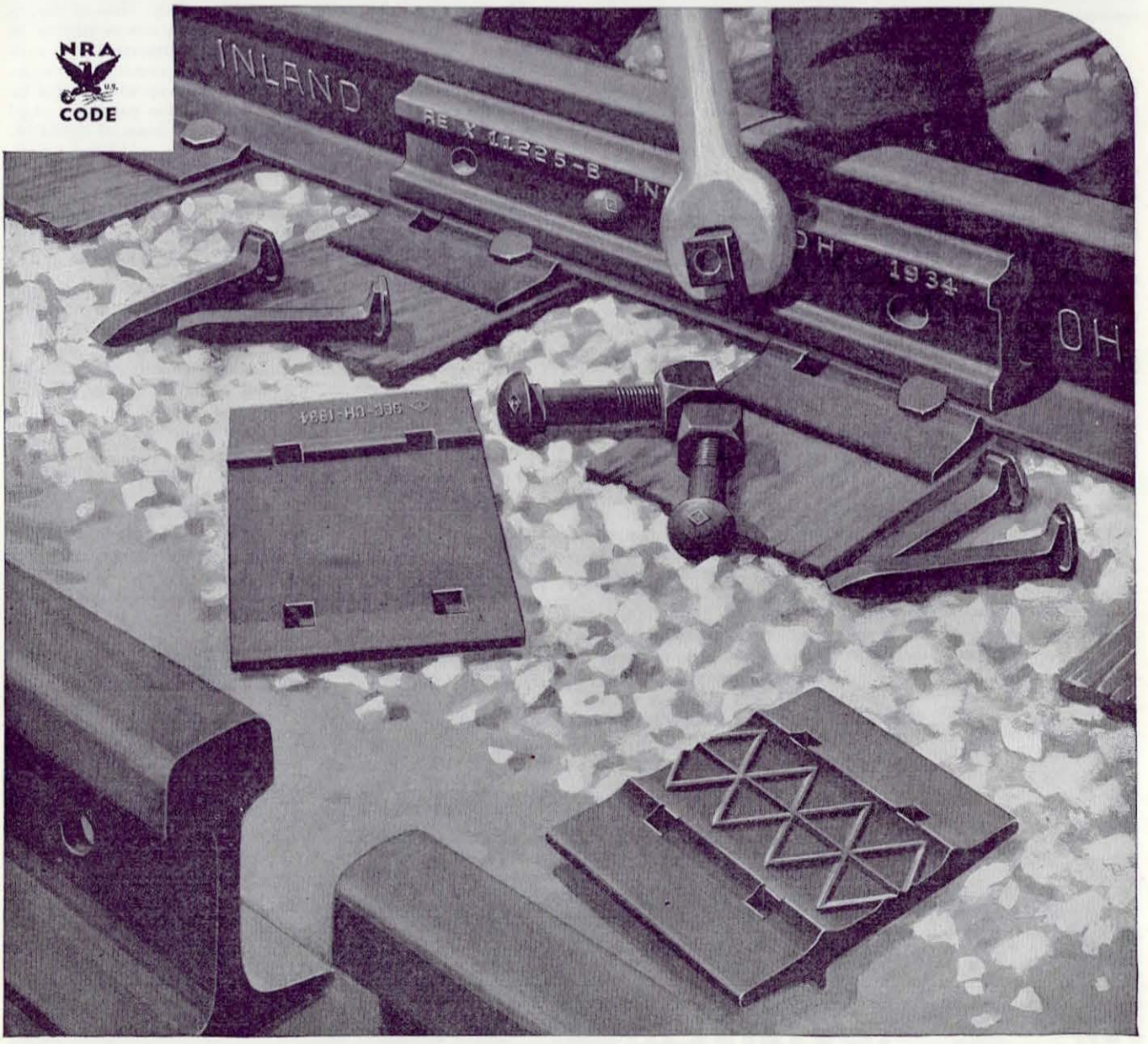
The railroads have suffered from the depression, but inequalities of competition with other forms of transportation have caused still greater losses with consequent large effect on railroad expenditures.



Southern Pacific is confident that a fair and unbiased analysis of this problem will convince every legislator and member of State and Federal regulatory bodies that repeal of the long and short haul clause of the Act will have an immediate favorable effect upon national recovery. The remedy proposed will solve a railroad problem, benefit the territories served, entails no expenditure of public funds and will be a matter of fair play.

AS NEW DEMANDS for SPEED, SAFETY and SERVICE BRING NEW PROBLEMS . . . CONSULT INLAND . . . on RAILS . . . ANGLE SPLICE BARS . . . TIE PLATES . . . SPIKES . . . BOLTS and other Rolled Steel Products

NRA CODE



INLAND STEEL

ABLE SERVANT OF THE CENTRAL WEST

Sheets Strip Tin Plate Plates Structurals Piling

Rails Track Accessories Bars Rivets Billets

38 S. Dearborn Street, Chicago, Ill.

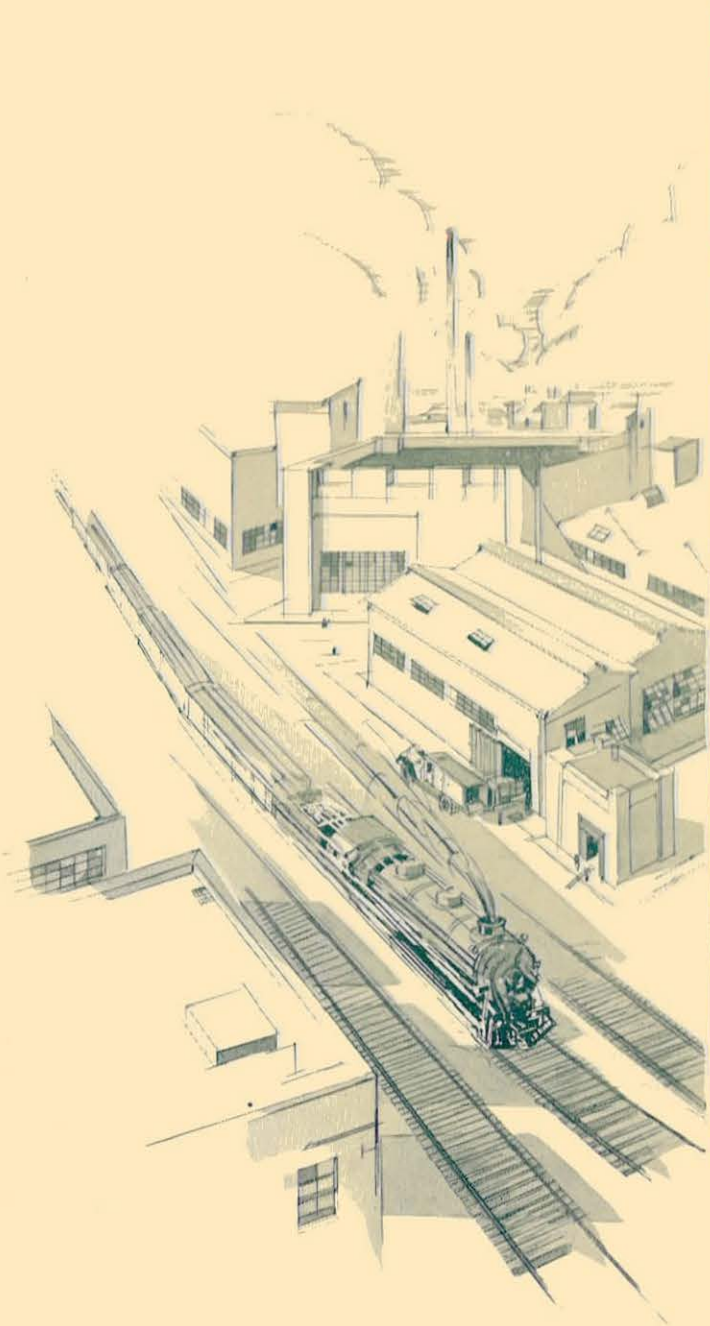
Restoration of the Railroad's earning power will mean Restoration of the Railroad's purchasing power . . . re-employment, new equipment, improved service . . . and the opening up of an all-important Highway to Recovery!

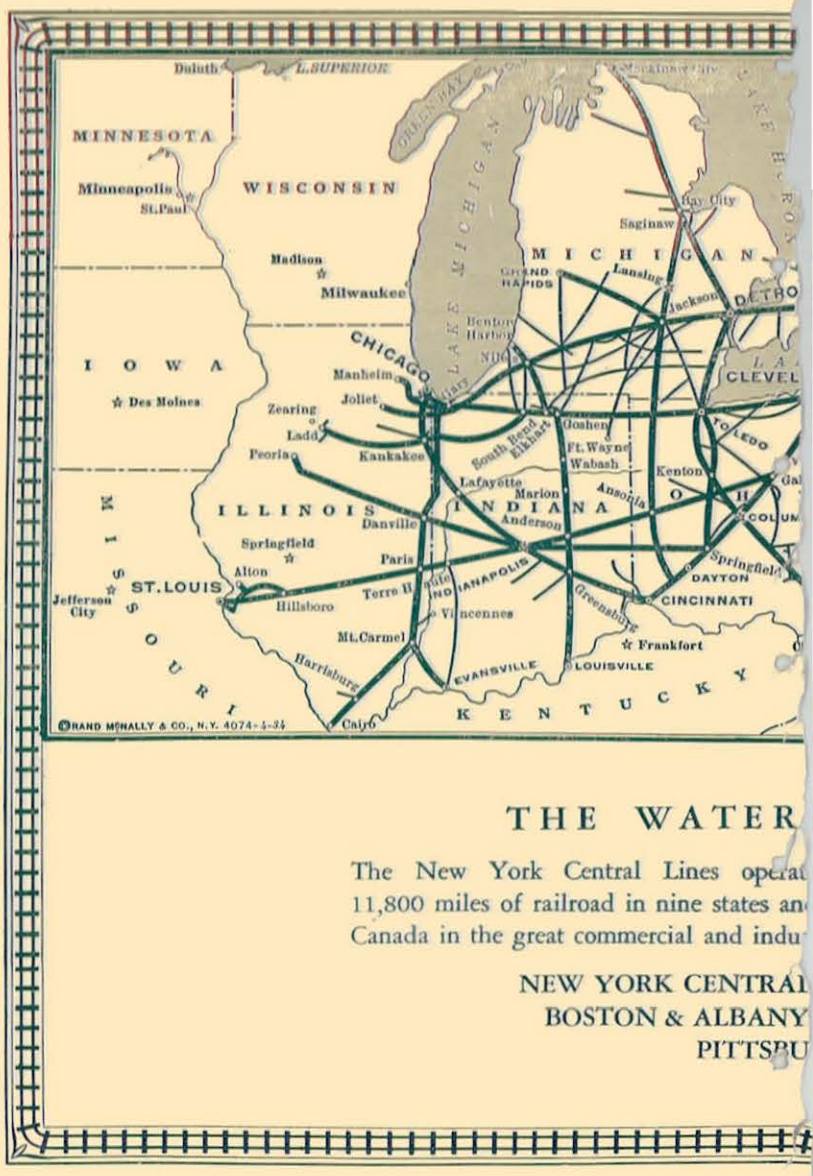
NEW YORK CENTRAL TAXES $280,202,644 IN TEN YEARS—$76,767 EVERY DAY

THE NEW YORK CENTRAL pays more taxes than any other railroad system in the United States. In the past ten years its taxes have totaled $280,202,644, an average of $2,335,022 every month, $76,767 every day and $3,198 every hour. In 1933, the railroad's earnings for 34 days were required to meet its tax bill.

The railroads are still one of the most important sources of tax revenue to state and local governments, as well as to the federal government. They provide and maintain at their own expense their right of way and pay taxes on all the property they own. Though they are rigorously regulated, their competitors, whose highways and waterways cost the taxpayers millions annually, are subjected to no comparable regulation and yield no net tax revenue for the support of the general functions of government. It is a paradox to see our governments—federal, state and local—using tax revenue in ways that cripple one of the most important sources of such revenue.

The New York Central is glad to pay its proportion of taxes for the support of the federal government and various state and local governments, but to do this, it must have the necessary income.





THE WATER

The New York Central Lines operat
11,800 miles of railroad in nine states an
Canada in the great commercial and indu

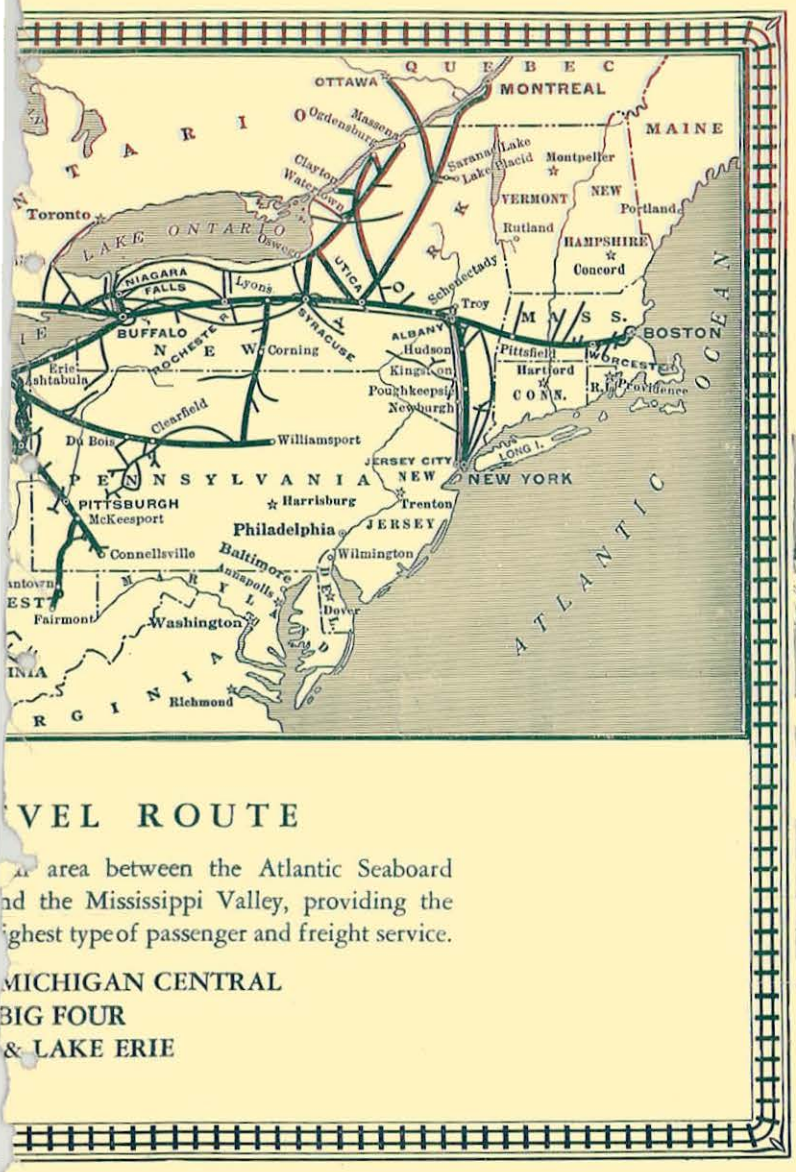
NEW YORK CENTRAL
BOSTON & ALBANY
PITTSBU

MOVING FREIGHT AT HIGH SPEED

DEMAND of modern business for faster transportation of freight with safety has been met by the New York Central, which early last summer placed in service the world's fastest freight train.

This new train, The Merchandiser, covers the 438 miles between New York City and Buffalo in 11 hours, including the time needed to pick up or drop cars at four stops along the route. This overnight service is swifter than that which can be given by motor trucks. Soon after its inauguration the service proved so popular that it was extended to Watertown, N. Y., and later to Malone, N. Y., for Canadian traffic; to Saranac Lake for resort traffic and to Oswego, N. Y. Thus, it serves the entire district of Greater New York, the Niagara Frontier and Canadian border points as well as the principal intermediate cities.

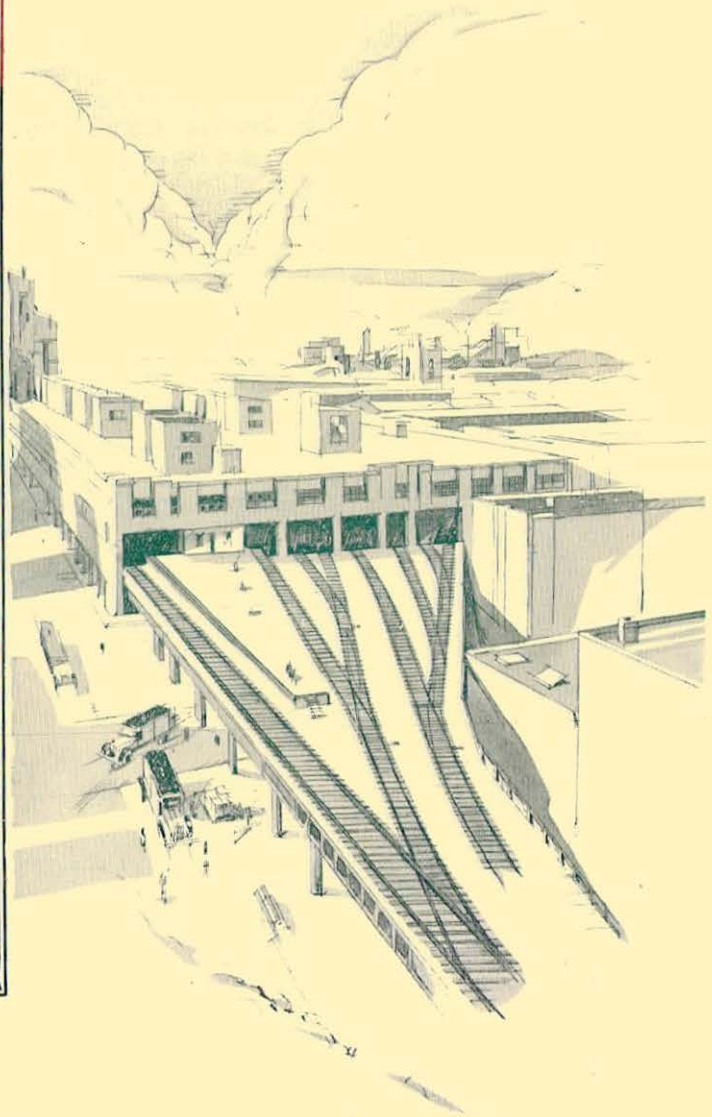
The train is made up of express refrigerator cars equipped with passenger type running gear. Leaving West 33rd Street, New York, at 6:45 p.m., it arrives in Buffalo at 5:45 and in Niagara Falls at 6:45 the next morning. Its eastbound twin leaves Niagara Falls at 5:45 p.m. and Buffalo at 6:50 p.m., arriving in the heart of New York at 5:45 a.m. Freight service stops are made at Albany, Utica, Syracuse and Rochester. Delivery at practically all points is shortened by 24 hours.



VEL ROUTE

area between the Atlantic Seaboard nd the Mississippi Valley, providing the ighest type of passenger and freight service.

MICHIGAN CENTRAL
BIG FOUR
& LAKE ERIE



MAMMOTH FREIGHT TERMINAL FOR NEW YORK CITY

FREIGHT terminal facilities in New York City of the finest type are offered the country's shippers by the New York Central's West Side Improvement and mammoth St. John's Park Freight Terminal, recently opened on the lower side of Manhattan Island.

This magnificent terminal, 800 feet long, covering three city blocks, is the terminus of the only all rail freight line directly entering Manhattan Island and is part of a new $100,000,000 development that gives the New York Central a private right of way for 13 miles from the northern tip of Manhattan Island to the Terminal, which is in the commercial and industrial heart of the city.

The new West Side Line provides for side tracks right to the doors of industries located along the right of way, and passes directly through buildings constructed with this idea in mind, thus enabling tenants to receive or ship freight within their own building, eliminating the cost in time and money of trucking. The great industrial advantages offered by this improvement are expected to result in the right of way and the 30th and 60th Street yards being covered with commercial structures.

The Terminal is served by eight tracks with a standing capacity of 150 cars. The first floor, at street level, is the freight house proper and has back-up platform space for 127 trucks inside the building, a factor expected to count heavily in saving time and money, particularly during stormy weather. Tracks enter the building on the second floor, where the two main line tracks spread into eight tracks. The Terminal handles both carload and less than carload freight and is New York City's principal delivery station for dairy freight.

The new Improvement, the only direct all-rail means of access to Manhattan Island, is only one of several improvements designed to increase the efficiency and economy of rail operation and to provide for shippers and receivers the most modern facilities for safe and rapid transportation of all types of freight.

The

ST. LAWRENCE WATERWAY TREATY

Statement by Railway Labor Executives' Association

[1]

It is not justified by economic necessity.

[2]

Would adversely affect labor conditions in the railroad industry in the United States and Canada and would greatly increase unemployment.

[3]

The present transportation plant and personnel is ample to handle the present and anticipated needs of the country for many years to come.

[4]

Any alleged necessity for waterway transportation is illusory. The net results of waterway transportation projects thus far have been to increase the cost of Government and taxation upon the people.

[5]

The construction of a St. Lawrence shipway would doubtless involve the United States and Canada in many international complications.

[6]

The net result to railway employes of the construction of a St. Lawrence shipway would be to tax railway employes in order to subsidize an enterprise that would eventually eliminate them from railroad service.

[7]

The construction of a St. Lawrence shipway would contribute toward the breaking down of our present rail transportation system and would nullify the efforts already made by the United States Government to protect our rail transportation system and the millions of its outstanding securities now held by insurance companies, financial institutions and individual citizens.

The New York Central Railroad believes the above statement, made by an organization representing large groups of employes and, in addition, their families, to be well founded. The St. Lawrence Waterway development, if carried out, is certain to increase materially the already heavy burden of taxes faced by the nation.

TRAINS of the Central R. R. of New Jersey cross Newark Bay on the big, four-track lift bridge west of Bayonne and turn north to the terminal yards at Jersey City. Baltimore and Ohio and Reading trains use the same busy tracks.

Power cables for the bridge and all the wires and cables for the signal installation along the main line and in the yards are OKONITE.

THE OKONITE COMPANY

Founded 1878

THE OKONITE-CALLENDER CABLE COMPANY, INC.

Factories: Passaic, N. J., Paterson, N. J.

SALES OFFICES:

NEW YORK CHICAGO PHILADELPHIA PITTSBURGH ST. LOUIS
ATLANTA SAN FRANCISCO LOS ANGELES SEATTLE DALLAS

General Electric Supply Corp., Boston, Mass.
Canadian Representatives: Engineering Materials, Limited, Montreal

GEORGIA R.R. 1834 OLD RELIABLE COURTESY SAFETY SERVICE

Railway Prosperity—*A Vital Necessity to the South*

THE West Point ROUTE

MORE than three million citizens, residing in a section of the Southland rich in agriculture and manufacturing have been served for nearly a century by the Atlanta and West Point Rail Road, The Western Railway of Alabama and Georgia Railroad. The service has been adequate at all times and in step with the progress of the region.

The prosperity of these railroads—their ability to function as first class carriers, and to meet the traffic demands of agriculture and hundreds of industrial enterprises and municipalities—is a vital necessity to the territory they serve.

Only with indomitable courage and the wisdom that years of experience has brought has it been possible for the railroads to weather many adversities and still exist to perform their public service.

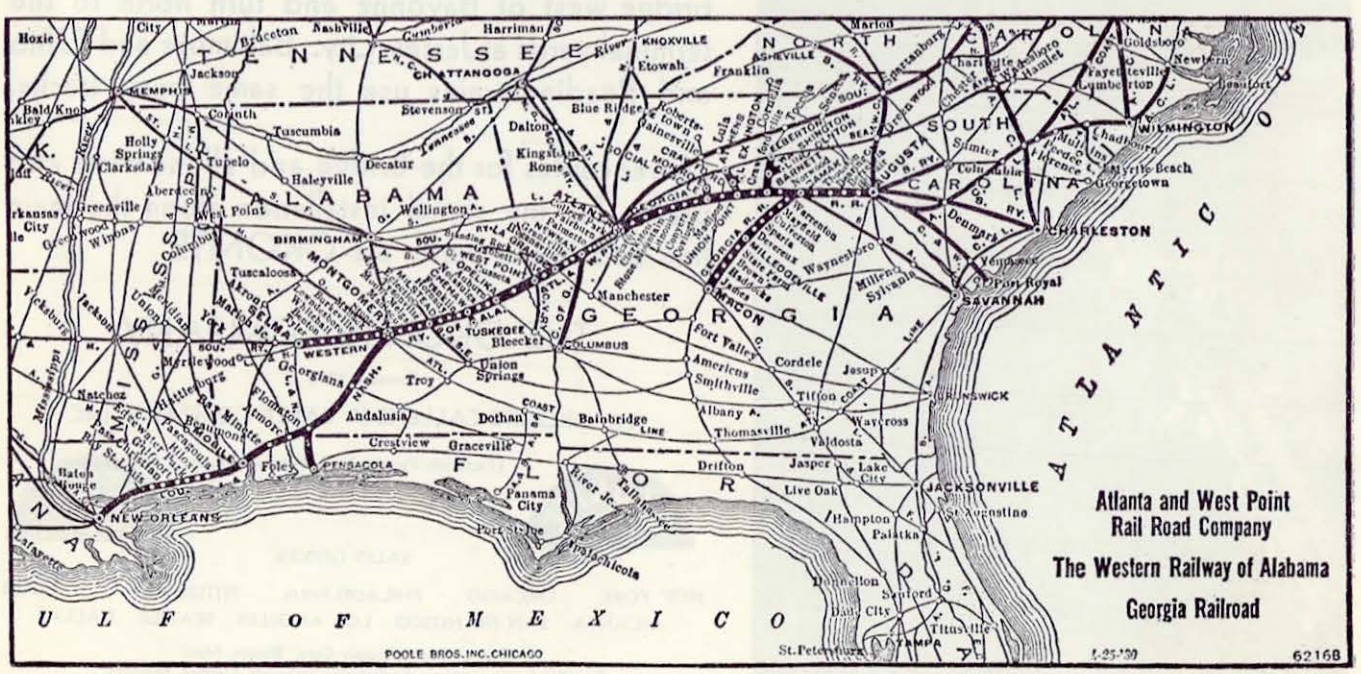
In addition to suffering severely from worldwide economic reverses, further burdens have been heaped upon these railroads by unregulated and unfair competition, thus limiting their ability to provide employment and to pay taxes upon which the communities they serve so largely depend.

These very taxes the railroads pay are used to help construct and maintain highways over which motor vehicles operate, unregulated, irresponsible and essentially superfluous, especially on highways that parallel established railroad lines. Operators of motor trucks haul such commodities as they select, and refuse to accept what they believe to be undesirable traffic. Without effective regulation, they may engage in the practice of giving discriminatory rates, or they may at any time abandon one territory and transfer their services to another which appears to be more lucrative.

With a multitude of regulations and restrictions, the railroads of this country cannot hope to meet unregulated highway competition. If this discrimination against the railroads is allowed to persist, the logical result will be that hundreds of thousands of former rail employees must remain permanently jobless, and a vast purchasing power that contributes to the prosperity of every community served by them will be reduced to a minimum.

Congress can avert a catastrophe by establishing a code of regulations whereby all means of transport will receive equitable treatment.

ATLANTA AND WEST POINT RAIL ROAD COMPANY
THE WESTERN RAILWAY OF ALABAMA
GEORGIA RAILROAD



POINTING THE WAY

FOR

STRENGTH
LIGHTNESS
ECONOMY OF UPKEEP
DURABILITY
PERMANENCE
SAFETY

The performance of the Burlington Zephyr and other stainless steel equipment has already indicated that stainless steel is the ideal metal for light-weight stream-lined trains. A tribute to this performance is the decision of the Boston and Maine Railroad to build a similar train of stainless steel.

Stainless steel needs no paints or lacquers to keep perfect its shimmering luster and to protect it from rust or tarnish. Utilization of its unique combination of physical properties—strength, lightness, durability and permanence—marks a step of progress in railway engineering and design.

For practical unbiased information on the uses of stainless steel call on Electromet engineers or write for the booklet "Stainless Steels and Their Uses."

ELECTRO METALLURGICAL COMPANY
Unit of Union Carbide and Carbon Corporation

NRA CODE

UCC

CARBIDE and CARBON BUILDING
30 EAST 42d ST., NEW YORK, N.Y.

Electromet
Ferro-Alloys & Metals

A GREAT EMERGENCY IS FACING US ALL

MEMBERS of the American Short Line Railroad Association, listed below, constitute a group of essential railway properties now confronted with an emergency of outstanding significance affecting not only the short line roads immediately concerned but also the areas served—the people employed—and the industries dependent upon the continued operation of these lines.

15,000 MILES OF SHORT LINE RAILWAYS ARE AN ESSENTIAL PART OF AMERICA'S RAIL TRANSPORTATION SYSTEM

A large proportion of this mileage was originally constructed to move mineral, forest and farm products out of regions that were then inaccessible. Villages, towns and farming communities were gradually founded—hundreds of important industries were established—all of which are now dependent on the short line railways.

The emergency with which American short line railways are confronted is particularly intensified by the fact that the average short line railway movement corresponds with the distance that unregulated and insufficiently taxed motor truck operators can negotiate with profit to themselves.

IS THIS A FAIR AND JUST PROFIT? Isn't every dollar abstracted in this manner made possible by the fact that smooth, costly highways have been provided and are being maintained at public expense—out of a general tax fund to which the short lines pay their proportionate share?

12,000 COMMUNITIES AND INDUSTRIES ARE DEPENDENT UPON THEIR CONTINUED OPERATION

This is by no means a railway emergency exclusively—it touches every citizen in the communities served—in addition

THE AMERICAN SHORT LIN

Aberdeen and Rockfish R. R. Co.
Akron, Canton & Youngstown Ry. Co. (H. B. Stewart, Trustee)
Alabama & Western Florida R. R. Co.
Alabama Central R. R. Co.
Alabama Central Ry.
Alabama, Florida & Gulf R. R. Co. (R. D. Crawford and W. W. Beall, Receivers)
Alabama, Tennessee & Northern R. R. Corp.
Alcolu R. R. Co.
Algers, Winslow and Western Ry. Co.
Angelina & Neches River R. R. Co.
Apache Ry. Co. (The) (Arthur J. McQuatters, Receiver)
Appalachian Ry. Co.
Arcade and Attica R. R. Corp.
Arcadia & Betsey River Ry. Co.
Arcata and Mad River R. R. Co. (The)
Arkansas & Louisiana Missouri Ry. Co.
Arkansas R. R. Co.
Arkansas Valley Interurban Ry. Co.
Artemus-Jellico R. R. Co.
Ashland Ry. Co.
Ashley, Drew & Northern Ry. Co.
Atlanta & Saint Andrews Bay Ry. Co.
Atlantic & Carolina R. R. Co.
Atlantic and Western Ry. Co.
Atlantic Northern Ry. Co.
Augusta Northern Ry.
Augusta R. R. Co.

Bamberg, Ehrhardt and Walterboro Ry. Co.
Bartlett Western Ry.
Bay Point and Clayton R. R. Co.
Beaver Valley R. R. Co.
Belfast and Moosehead Lake R. R. Co.
Bellefonte Central R. R. Co.
Bennettsville and Cheraw R. R. Co.
Big Creek and Telocaset R. R. Co. (The)
Bingham and Garfield Ry. Co.
Birmingham & Southeastern R. R. Co.
Birmingham Southern R. R. Co.
Blue Ridge Ry. Co.
Bowden Ry. Co.
Bois D'Arc & Southern Ry. Co.
Broward County Port Authority
Buffalo Creek R. R. Co. (The) (Erie R. R. Co. and Lehigh Valley R. R. Co., Lessees)
Buffalo, Union-Carolina R. R.
Bush Terminal R. R. Co.
Butte, Anaconda & Pacific Ry. Co.

Cadiz R. R. Co.
California Western R. R. & Navigation Co.
Cambria and Indiana R. R. Co.
Camino, Placerville & Lake Tahoe R. R. Co.
Cape Fear Rys., Inc.
Cape Girardeau Northern Ry. Co. (George W. Cross, Receiver)
Carlton and Coast R. R. Co.
Carolina and Northwestern Ry. Co.
Carolina Western R. R.
Cedar Rapids and Iowa City Ry.
Central West Virginia and Southern R. R. Co.
Charles City Western Ry. Co.
Chattahoochee Valley Ry. Co.
Chesapeake Beach Ry. Co.
Chesapeake Western Ry.
Chicago Short Line Ry. Co.
Chicago South Shore and South Bend R. R.
Chicago, Springfield & St. Louis Ry. Co. (Elmer Nafziger, Receiver)
Chicago, West Pullman & Southern R. R. Co.
Cisco & Northeastern Ry. Co.
Clarendon and Pittsford R. R. Co. (The)
Cliffside R. R. Co.
Collins & Glennville R. R. Co.
Colorado-Kansas Ry. Co. (The)
Columbia & Cowlitz Ry. Co.
Condon, Kinzua & Southern R. R. Co.
Cornwall R. R. Co.
Coudersport and Port Allegany R. R. Co.
Cowlitz, Chehalis & Cascade Ry.
Craig Mountain Ry. Co.
Crystal River and San Juan R. R. Co.
Cumberland and Pennsylvania R. R. Co.

Dansville and Mount Morris R. R. Co.
Danville and Western Ry. Co.
Dardanelle & Russellville R. R. Co.
De Kalb & Western R. R. Co.
Delta Valley & Southern Ry. Co.
De Queen and Eastern R. R. Co.
Des Moines & Central Iowa R. R.
Due West Ry. Co.
Duluth & Northeastern R. R. Co.

East Berlin R. R. Co.
East Erie Commercial R. R.
East Jersey R. R. and Terminal Co.
East Jordan & Southern R. R. Co.
Eastland, Wichita Falls & Gulf R. R. Co.
East St. Louis, Columbia and Waterloo Ry.
East Tennessee and Western North Carolina R. R. Co.
Edgmoor and Manetta Ry.
Erie & Michigan Ry. and Navigation Co.
Escanaba and Lake Superior R. R. Co.
Ettrick R. R. Co.
Euclid R. R. Co. (The)

Ferdinand R. R. Co.
Fernwood, Columbia & Gulf R. R. Co.
Flemingsburg and Northern R. R. Co.
Flint River and Northeastern R. R. Co.
Fonda, Johnstown and Gloversville R. R. Co. (J. L. Hees, Trustee)
Fort Smith, Subiaco & Rock Island R. R. Co.
Fore River R. R. Corp.
Frankfort & Cincinnati R. R. Co.
Fredericksburg & Northern Ry. Co.

Gainesville Midland Ry. (Gordon C. Garson and W. B. Veazey, Receivers)
Galesburg and Great Eastern R. R. Co.
Genesee and Wyoming R. R. Co.
Georgia and Florida R. R. (W. V. Griffin and H. W. Purvis, Receivers)
Georgia, Ashburn, Sylvester & Camilla Ry. Co.
Georgia Northern Ry. Co. (The)
Georgia Southwestern and Gulf R. R. Co.
Grafton and Upton R. R. Co.
Graham County R. R. Co.
Grasse River Railroad Corp.
Greene County R. R. Co. (The)
Greenville and Northern Ry. Co.

Hampton & Branchville R. R. Co.
Hannibal Connecting R. R. Co.
Hanover Ry. Co.
Hardwick & Woodbury R. R. Co.
Hartwell Ry. Co.
Hickory Valley R. R. Co.
High Point, Randleman, Asheboro and Southern R. R. Co.
High Point, Thomasville & Denton R. R Co.
Hillsboro and North Eastern Ry. Co.
Hobart Southern R. R. Co.
Hooppole, Yorktown and Tampico R. R. Co.
Hoosac Tunnel and Wilmington R. R. Co.
Howard Terminal Ry.
Hutchinson and Northern Ry. Co. (The)

Illinois Northern Ry.
Intermountain Ry. Co.
Iowa Southern Utilities Co.

Jamestown, Westfield and Northwestern R. R. Co.
Johnstown and Stony Creek R. R. Co.
Joplin-Pittsburgh R. R. Co. (The)

Kane and Elk R. R. Co.
Kansas & Oklahoma R. R. Co. (The)
Kansas and Sidell R. R. Co. (The)
Kelly's Creek R. R. Co.
Kentucky & Tennessee Ry.
Kishacoquillas Valley R. R. Co.

Lackawanna and Wyoming Valley R. R. Co.
Lake Champlain and Moriah R. R. Co.
Lake Erie, Franklin & Clarion R. R. Co.
Lakeland Ry.
Lakeside and Marblehead R. R. Co.
Lake Terminal R. R. Co.
Lancaster and Chester Ry. Co.
Laona & Northern Ry. Co.
La Salle and Bureau County R. R. Co.
Laurinburg and Southern R. R. Co.
Lawndale Ry. & Industrial Co.
Ligonier Valley R. R. Co.
Linville River Ry. Co.
Little River R. R. Co. (The)

to the security of wage and employment of railway personnel, it affects equally the employees of many important industries supplying railway equipment and materials—it touches the financial problems of state and national governments—and has a vital bearing on the upkeep of local community institutions now so largely financed and supported by railway taxes.

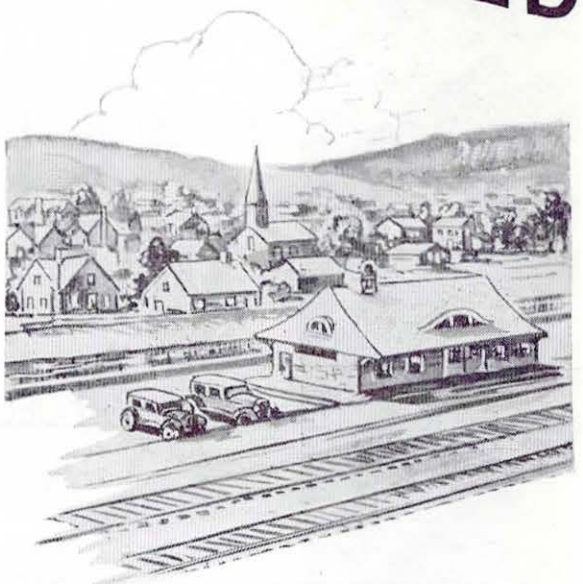
It is imperative that Congress consider carefully the fact that 12,000 communities and industries are dependent upon the continued operation of these roads.

In many instances inequitable taxation and regulation have throttled short line railway systems almost to the point of extinction. Why are these roads continued? Simply because they are absolutely essential to hundreds of communities.

Citizens, owners of industries, farmers and inhabitants everywhere throughout the sections served by short line railways fully realize that their property values, their business interests and standards of living are at stake. In numerous cases, when trunk railway systems could no longer carry the burden of operating branch lines at heavy loss, these lines were taken over by local business men and farmers, who were virtually obliged to do so as a measure of self preservation and community protection.

These men ask that Congress so regulate the entire transportation industry as to permit equality of opportunity for service on the part of each competitive transportation agency. They ask that the transportation industry be stabilized by a fair regulation, and that the $2,000,000,000.00 short line railroad industry be not destroyed.

A $2,000,000,000 INDUSTRY IS THREATENED



AILROAD ASSOCIATION

Live Oak, Perry & Gulf R. R. Co.
Lorain and Southern R. R. Co. (The)
Louisiana Southern Ry. Co.
Louisville and Wadley R. R. Co.
Louisville, New Albany & Corydon R. R. Co.
Lufkin, Hemphill and Gulf Ry. Co.

McCloud River R. R. Co.
Manchester and Oneida Ry. Co.
Manistee and Northeastern Ry. Co.
Mansfield Ry. & Transportation Co.
Manufacturers' Junction Ry. Co.
Marianna & Blountstown R. R. Co. (The)
Marinette, Tomahawk & Western R. R. Co.
Marshall, Elysian Fields and Southeastern R. R. Co.
Maryland and Delaware Seacoast R. R. Co.
Maryland and Pennsylvania R. R. Co.
Mason City and Clear Lake R. R. Co.
Maxton, Alma and Southbound R. R. Co.
Middle Creek R. R. Co.
Middletown and Unionville R. R. Co.
Midland Continental R. R. Co.
Milstead R. R. Co.
Milwaukee Electric Ry. and Light Co.
Minarets and Western Ry. Co., Ltd.
(George R. Sykes, Trustee)
Minneapolis, Anoka and Cuyuna Range R. R. Co.
Minneapolis, Northfield and Southern Ry.
Minnesota Northwestern Elec. Ry. Co.
Mississippi & Alabama R. R. Co.
Mississippi & Skuna Valley R. R. Co.
Mississippi Export R. R. Co.
Missouri and Kansas R. R. Co. (The)
Mobile & Gulf R. R. Co. (The)
Montana R. R. (Ark.)
Montana, Wyoming & Southern R. R. Co.
Moore Central Ry. Co.
Morehead and North Fork R. R. Co.
Morristown & Erie R. R. Co.
Moscow, Camden & San Augustine R. R.
Moshassuck Valley R. R. Co.
Mount Hood R. R. Co.
Muncie and Western R. R. Co.

Nacogdoches & Southeastern R. R. Co.
Narragansett Pier R. R. Co. (The)
Nashville-Franklin Ry. Co.
Natchez, Urania and Ruston Ry. Co.
Nelson & Albermarle Ry. Co.
Nevada Central R. R. Co. (The)
Newaukum Valley R. R. Co.
Newburgh and South Shore Ry. Co.
New Orleans, Natalbany and Natchez Ry. Co.
New York and Pennsylvania Ry. Co.
New York Dock Ry.
Nezperce & Idaho R. R. Co.
Northampton and Bath R. R. Co.
Northeast Oklahoma R. R. Co.
North Louisiana & Gulf R. R. Co.
Norwood & St. Lawrence R. R. Co.

Ohio River Ry. and Power Co. (The)
Oklahoma & Rich Mountain R. R. Co.
Okmulgee Northern Ry. Co.
Omaha, Lincoln and Beatrice Ry. Co.
Oneida & Western R. R. Co.
Oregon & Northwestern R. R.
Oregon, Pacific and Eastern Ry. Co.
Ouachita and North Western R. R. Co.
Ozark Southern Ry. Co.

Pacific Coast Ry. Co. (California)
Pacific and Idaho Northern Ry. Co.
Paris and Mt. Pleasant R. R. Co.
Pearl River Valley R. R. Co.
Pickens R. R. Co.
Pittsburgh County Ry. Co.
Pittsburgh & Susquehanna R. R. Co.
(Walter N. Todd, Receiver)
Port Huron and Detroit R. R. Co.
Prattsburgh Ry. Corp.
Prescott and Northwestern R. R. Co.
Puget Sound & Cascade Ry. Co.
Pullman R. R. Co.

Quakertown & Bethlehem R. R. Co.
Quanah, Acme & Pacific Ry. Co.
Quincy R. R. Co.

Rahway Valley Co.
(Rahway Valley Co., Lessee)
Rapid City, Black Hills & Western R. R. Co.
Ray and Gila Valley R. R. Co.
Reader R. R.
Red River and Gulf R. R.
Rio Grande and Eagle Pass Ry. Co.
Roby & Northern R. R. Co.
Rock Port, Langdon & Northern Ry. Co.
Rockton-Rion Ry. Co.
Roscoe, Snyder and Pacific Ry. Co.
Rowlesburg & Southern R. R. Co.

St. Louis and Hannibal R. R. Co.
St. Louis and Troy R. R. Co.
Sabine & Neches Valley Ry. Co.
Salt Lake and Utah R. R. Co.
(D. P. Abercrombie, Receiver)
Salt Lake, Garfield and Western Ry. Co.
Sandersville R. R. Co.
San Diego and Arizona Eastern Ry. Co.
San Francisco, Napa and Calistoga Ry.
San Luis Central R. R. Co. (The)
San Luis Valley Southern Ry. Co. (The)
Santa Maria Valley R. R. Co.
Savannah and Atlanta Ry.
(Charles E. Gay, Jr., Receiver)
Sheffield and Tionesta Ry. Co.
Shreveport, Houston & Gulf R. R. Co.
Sierra Ry. Co. of California
Skaneateles R. R. Co.
Southern New York Ry., Inc.
South Georgia Ry. Co. (The)
Springfield Terminal Ry. Co. (Illinois)
Stewartstown R. R. Co. (The)
Sumter and Choctaw Ry. Co.
Suncook Valley R. R.
Susquehanna and New York R. R. Co.
Sylvania Central Ry. Co.

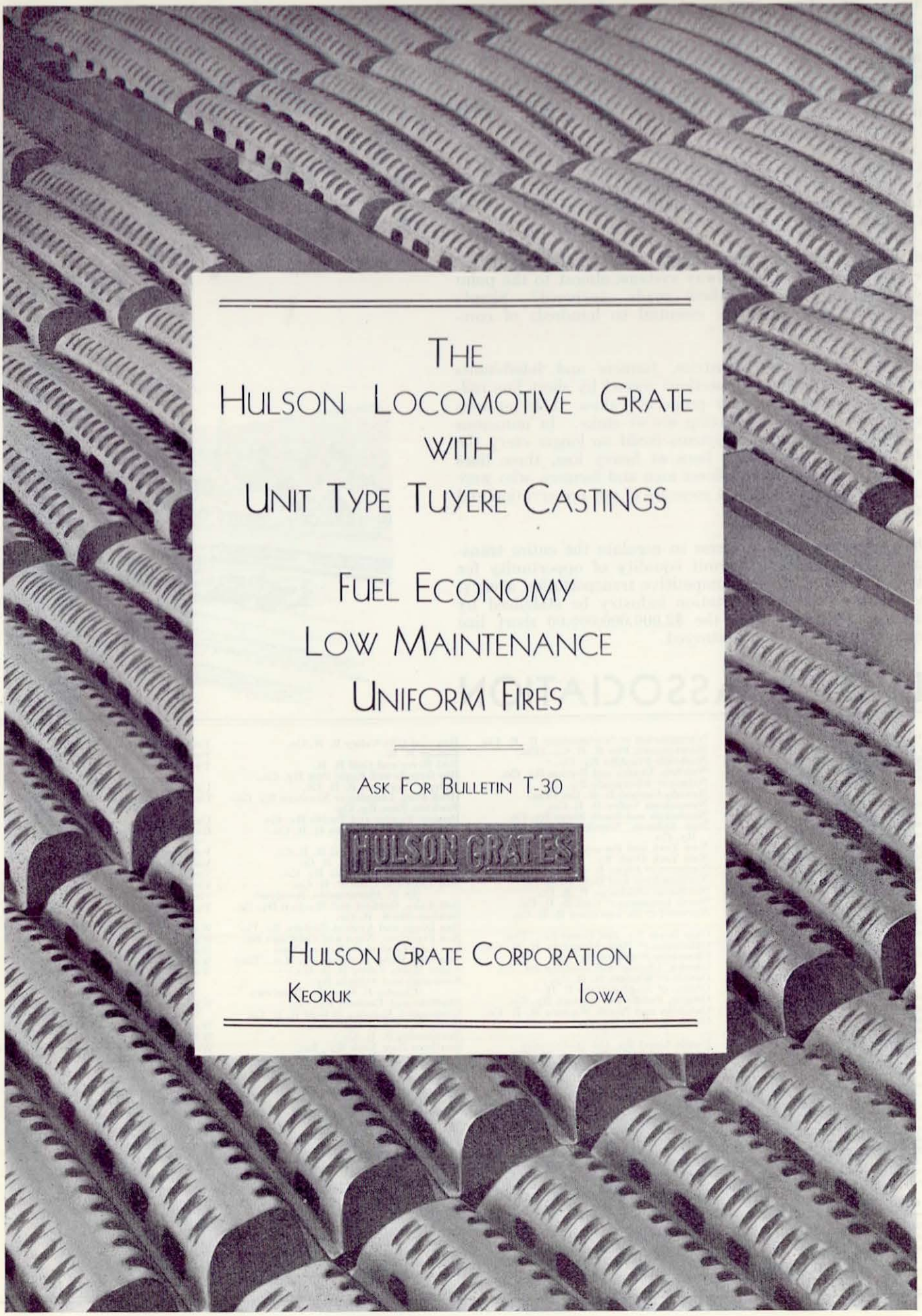
Talbotton R. R. Co.
Tallulah Falls Ry. Co.
(J. F. Gray, Receiver)
Tennessee, Alabama & Georgia Ry.
Tennessee & North Carolina Ry. Co.
Tennessee R. R. Co.
Terminal Ry., Alabama State Docks
Texas South-Eastern R. R. Co.
Tooele Valley Ry. Co.
Trans Florida Central R. R. Co.
Trinity Valley Southern R. R. Co.
Trona Ry. Co.
Tuckaseegee and Southeastern Ry. Co.
Tuckerton R. R. Co. (The)
Tucson, Cornelia and Gila Bend R. R. Co.
Twin City Ry. Co.

Union R. R. Co. (Pittsburgh, Pa.)
Union Traction Co. (Kansas) (The)
(John F. Layng, Receiver)
Unity Rys. Co.
Uvalde & Northern Ry. Co.

Valley and Siletz R. R. Co.
Valley R. R. Co. (of Pa.)
Verde Tunnel and Smelter R. R. Co.
Virginia and Carolina Southern R. R. Co.
Virginia & Truckee Ry.
Virginia Blue Ridge Ry.

Wadley Southern Ry. Co.
Ware Shoals R. R. Co.
Warren & Saline River R. R. Co.
Warrenton R. R. Co.
Washington and Old Dominion Ry.
(Wilton J. Lambert and Davis Elkins, Receivers)
Washington, Brandywine and Point Lookout R. R. Co. (The)
Washington, Idaho & Montana Ry. Co.
Waterville Ry. Co. (The)
Weatherford, Mineral Wells and Northwestern Ry. Co. (The)
Western Allegheny R. R. Co.
Westfield R. R. Co. (The)
West Virginia Northern R. R. Co.
Wichita Falls & Southern R. R. Co.
Wichita Northwestern Ry. Co. (The)
(T. A. Fry, Receiver)
Willamette Valley & Coast R. R. Co.
Winchester & Wardensville R. R. Co.
Winfield R. R. Co. (The)
Wisconsin & Michigan R. R. Co.
Wisconsin Power and Light Co.
Wrightsville and Tennille R. R. Co.
Wyandotte Southern R. R. Co.
Wyoming Ry. Co.

Yadkin R. R. Co.
Yakima Valley Transportation Co.
York Utilities Co.
Yosemite Valley R. R. Co.
Yreka R. R. Co.


THE
HULSON LOCOMOTIVE GRATE
WITH
UNIT TYPE TUYERE CASTINGS
FUEL ECONOMY
LOW MAINTENANCE
UNIFORM FIRES
ASK FOR BULLETIN T-30
HULSON GRATES
HULSON GRATE CORPORATION
KEOKUK IOWA

Yes! Uncle —

the Answer to Your Problem is the Durable Goods Industry

STATISTICS show that nearly one-half of the nation's ten million unemployed are waiting outside the closed doors of the durable goods industries.

A large majority of the remaining idle belong to the service group which handles, transports and sells the products of these industries.

Therefore, the solution of the nation's economic problems lies in the restoration of normal purchases from the durable goods industries.

Railroads are one of the largest consumers of durable goods, but their purchases have declined from $1,472,000,000 in 1926 to $282,000,000 in 1933.

These figures are convincing evidence of the vital part played by the railroads in our national prosperity.

Industry is waiting—labor is waiting—business is waiting—waiting for the railroads to resume their normal purchases.

Government regulation of all transportation will insure the flow of traffic through natural economic channels and restore railway purchasing power.

Vicious cut-throat competition will be abolished. Motor transport operators will benefit by the elimination of "fly-by-night" competitors whose antiquated equipment are a growing menace to the transportation industry and safety of the public on the highways.

EDWARDS
TRADE
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THE O. M. EDWARDS CO., Inc.

SYRACUSE, N. Y.

Canadian Representatives: LYMAN TUBE AND SUPPLY CO., Montreal and Toronto

MAGNUS

For Service and Delivery

BRONZE ENGINE CASTINGS
SATCO LINING MATERIAL
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Where Records are Made
You Will Find Magnus Products

"MAGNUS PRODUCTS ARE BRASS INSURANCE"

MAGNUS JOURNAL BEARINGS
STAND UP UNDER
THE HEAVIEST LOADS

LINK THE RAILROADS AND

MAGNUS COMPANY

METALS

A Factual Statement

Increased Purchases by Railways Mean Recovery in the Durable Goods Industry.

National Recovery Depends Upon Recovery in the Durable Goods Industries.

Increased Purchases by Railways Depend Upon Increased Railway Earnings.

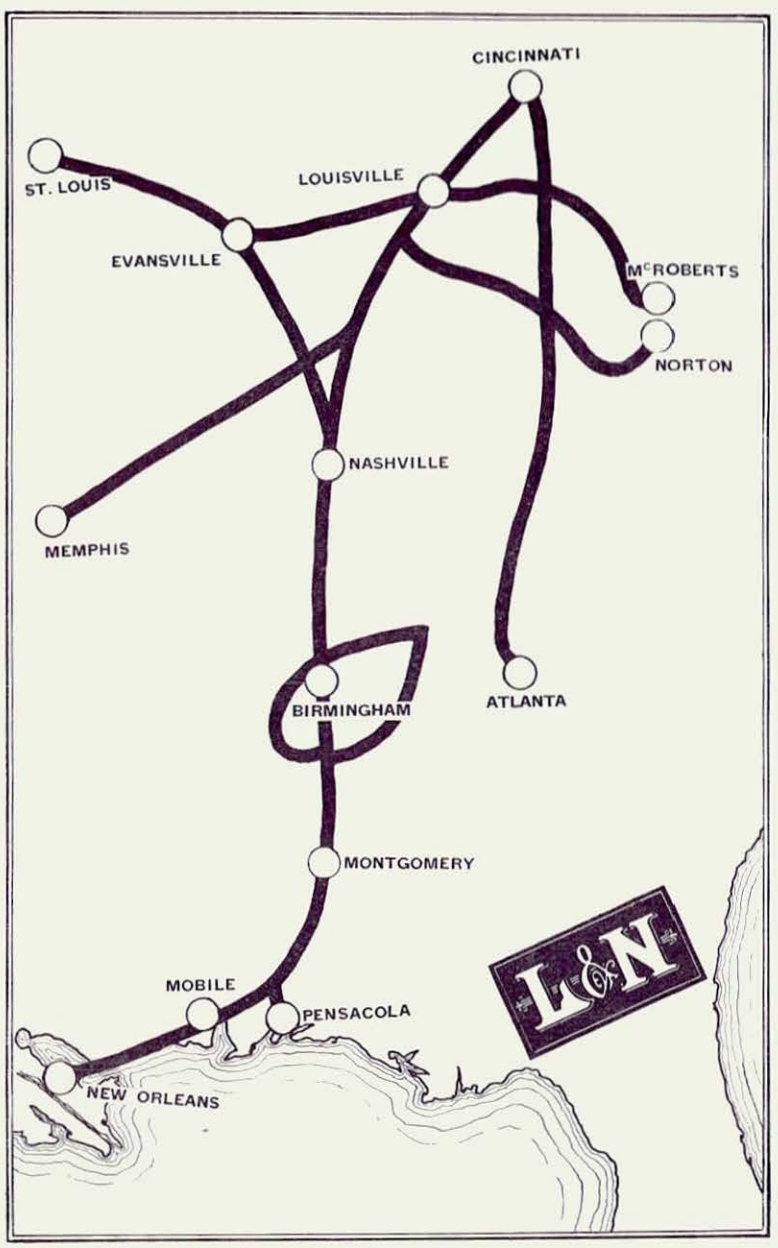
THE DURABLE GOODS INDUSTRY

INC. Chicago-New York

The Railroads Must Earn To Spend

The nation's credit, the surety of employment, and the current flow of commerce inevitably rise and fall with the capacity to produce and dispose of the products of industry. Restored purchasing power, therefore, is one vital fulcrum with which to lift the country back to prosperity.

Of major importance in this objective is the rehabilitation of the railroad industry. The railroads are the largest consumers of America's basic commodities. In normal times they require about 25% of the coal and about 20% of the fuel oil produced; nearly 20% of the timber cut and about 17% of the iron and steel output. In addition, they normally employ over 1,500,000 people, which, with their families and those employed in railway supply industries, constitute a substantial portion of the country's buying population.



Principal routes of the Louisville & Nashville Railroad

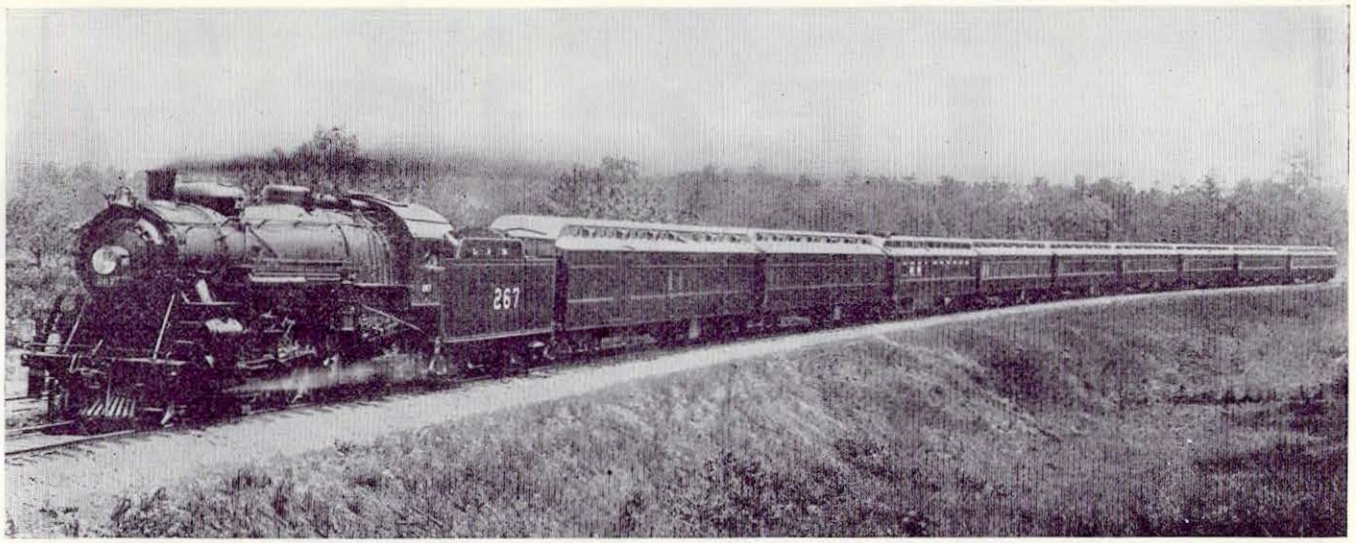
In the eight years up to 1930, the railroads spent an average of nearly $1,400,000,000 per year for the purchase of materials and supplies. Since 1930, the average has been about $530,000,000, a decline of $870,000,000 per year, equal to 62%.

The average railway payroll in the eight years prior to 1930 was $2,850,000,000 per year; since 1930 the average has been $1,670,000,000, a decline of $1,180,000,000 per year, equal to 41%.

These figures succinctly emphasize the enormous decline in railroad purchasing power in the past few years, and graphically illustrate the tremendous influence of such reduction on all industrial activity.

The railroads have been forced to these economies by conditions beyond their control. Faced with seriously declining revenues, higher operating costs for labor and material and with an actual loss in net income for the past two years, they have resorted to heroic measures to provide safe and satisfactory public service. Never have they operated more economically and efficiently, yet never before have they faced such a grave crisis.

The railroads have shared in common with all industry the crippling effects of the depressed business, but their situation has been made worse



The Pan American, fast deluxe train of the Louisville & Nashville Railroad

because they have suffered, and are suffering, from influences not common to other business enterprises. Their plight has resulted in a very substantial measure from the effects of the unregulated and unfair competition of other forms of transportation, made possible largely by governmental subsidy, and from their inability to meet this competition because of the manifold regulations imposed by law which control virtually every phase of their operation.

The railroads are and will continue to be for an indefinite period the chief instruments for transporting the Nation's basic necessities. They are fulfilling their obligations as public servants as best they can, and are constantly striving to make their service even more efficient and attractive. They will continue to utilize all available sources of increased revenue to rehabilitate their properties and install improvements to meet the public demand, but manifestly their opportunities are extremely limited in the face of decreased earnings, impaired credit, and reduced purchasing power, resulting in a very definite degree from the burdens of over-regulation, inequitable taxation, and unfair competition.

The necessity of restoring railway purchasing, with its immediate and profound effect on business, reduces the problem to that of restoring the ability of the railroads to make these purchases. Public interest, therefore, requires legislation by the State and Federal Governments that will restore the purchasing power of the railroads, and their credit—measures that will bring about the elimination of unnecessary interference with railroad managements, enable them to adjust their operations to economic conditions, and give opportunity to meet their competitors on a fair and equal basis.

The members of Congress and State Legislatures, and all public spirited citizens alike, can perform no more important and patriotic work in their common purpose to speed the return of good times than by exerting all of their strength and ability toward the enactment of laws that will open the way for the rehabilitation of the great railroad industry which plays such an indispensable role in our economic, industrial and social life.

The Louisville & Nashville Railroad, with a background of over 80 years of reliable public service, with an unsullied record of dependability in meeting its obligations, and with an investment of over one-half billion dollars in a transportation plant that has been of incalculable value in the development and progress of the Central South, feels that it is entitled to make this plea for fair play at the hands of the public and its regulating bodies, and is confident that its consummation would very promptly and definitely accelerate the return of our national prosperity.

LOUISVILLE & NASHVILLE R. R.

Like a sick man, but with the desire to do things, the railways are calling for intelligent remedial legislation, which fairly administered will enable them to proceed normally. Lasting and healthy prosperity will come only after such treatment is given.

VILOCO Railway Equipment

TORS :

Prescribe the remedies which will revive the Railways and Durable Goods Industries.

STIMULATION of the durable goods industries is necessary for any marked degree of national prosperity.

The railways are one of the largest purchasers of durable goods, but unless their purchasing power is increased they cannot give the needed stimulation to the durable goods industries through increased orders.

AND THE RAILWAYS WANT TO BUY

Their buying will stimulate the use of Viloco and Okadee products, locomotive and car equipment that provides many of the safeguards in the transporting of valuable goods.

Such increased use will in turn permit the Viloco and Okadee Companies to again reinstate men on their payrolls, who in turn will buy and create more jobs in other lines of the durable goods industries.

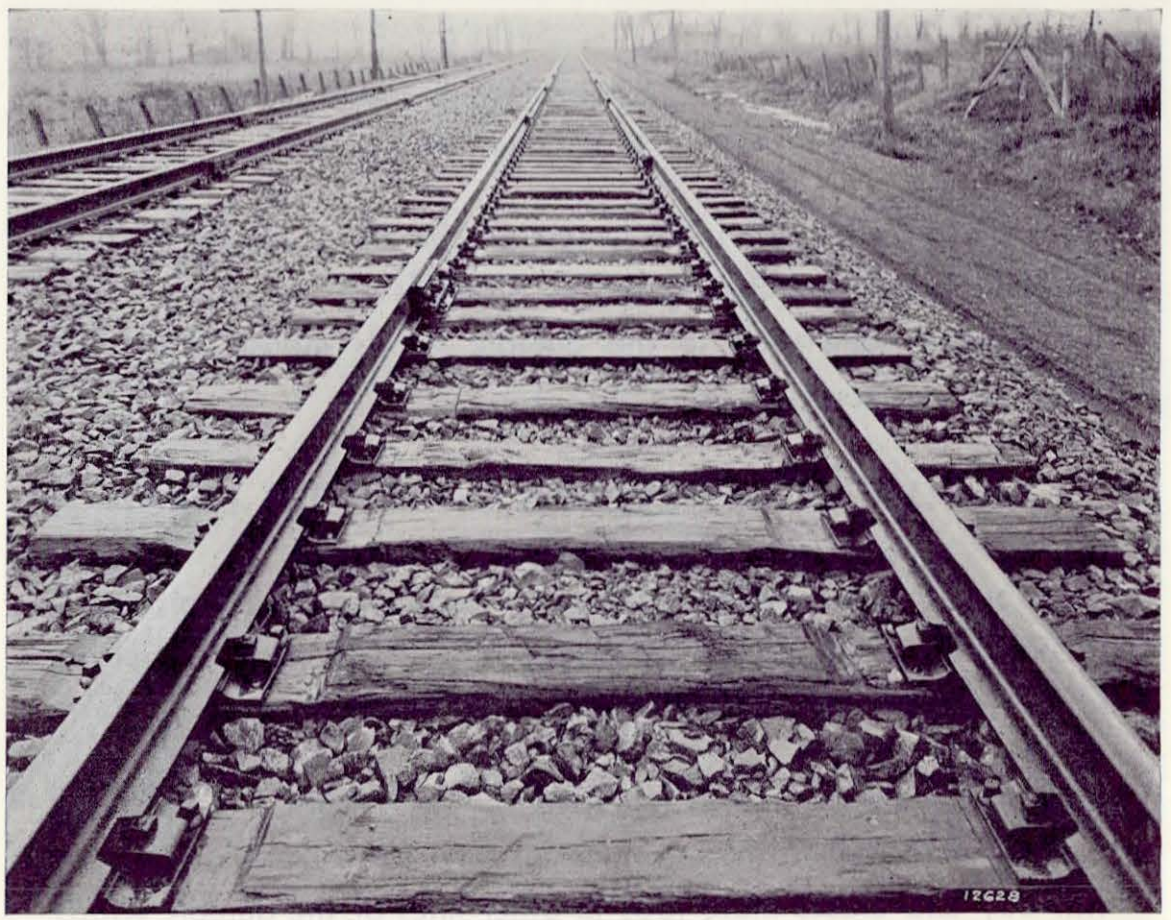
You legislators can make this increase buying power and re-employment of men possible through immediate action on measures now before you.

Co.—OKADEE Co. **CHICAGO ILLINOIS**

For Half a Century

THE Q AND C CO.

has specialized exclusively in the development and sales of Railroad Track, Car and Locomotive devices to meet ever changing advancement.



Q & C Tie Plate Rail Fastener M & L Type for a safe and economically maintained track structure.

Nearly two hundred miles of this construction has been in service over a period of years. Some of it in rock, some in cinder and some in gravel ballast proving the value of this type of construction under various conditions existing on American railroads.

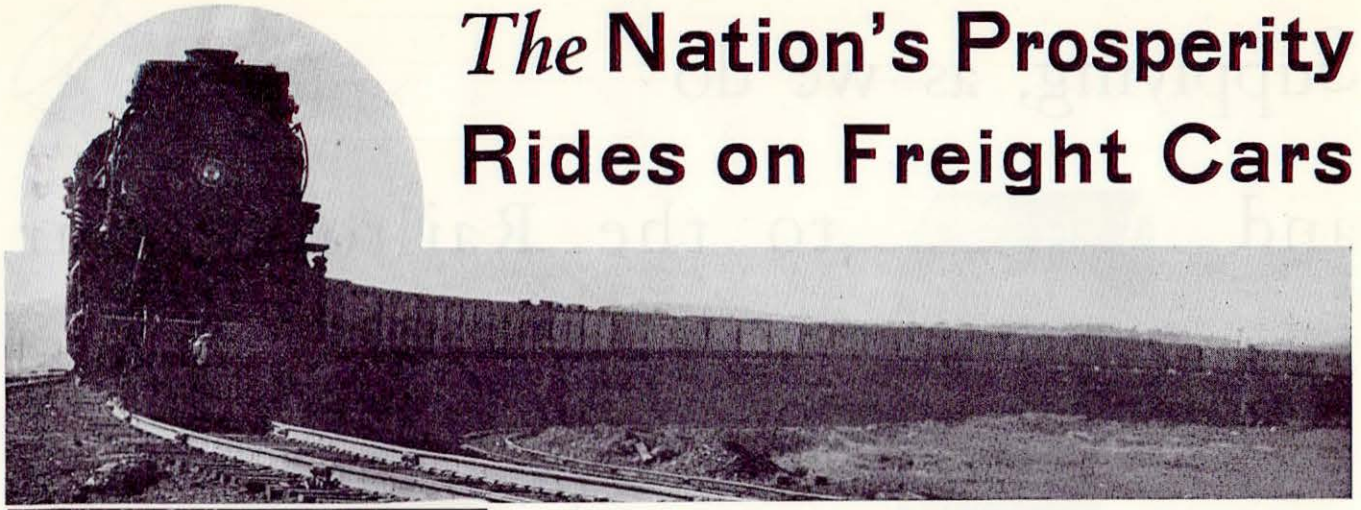
This is a modern tie plate construction to meet modern requirements.

The Q and C Company

90 WEST STREET
NEW YORK CITY

59 East Van Buren Street
CHICAGO, ILLINOIS

Railway Exchange Building
ST. LOUIS, MISSOURI



The Nation's Prosperity Rides on Freight Cars

When-- the familiar red box car made its appearance on the American scene

Then-- the American standard of living began its upward trend.

Shall-- we return to the low standards prevalent in the canal days by throttling the railways. We think not.

The Mt. Vernon Car Mfg. Co. has its plant in a relatively small community. It is one of thousands of similar manufacturing institutions in small cities, institutions that are far more vital to these thousands of towns than is any one factory to the larger centers.

When our plant shuts down, it means an immediate and unfortunate increase in the unemployment of the city of Mount Vernon, and the effect on purchases and credit is far reaching. The prosperity of the small cities is just as vital to national recovery as that of metropolitan centers.

WE MAKE

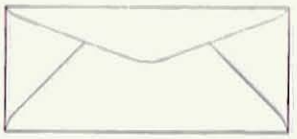
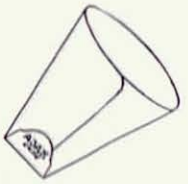
CARS OF ALL DESCRIPTIONS, PARTICULARLY MODERN LIGHT WEIGHT FREIGHT CARS OF ALLOY STEEL

•

DRY ICE REFRIGERATION TEMPERATURE CONTROL FOR REFRIGERATOR EQUIPMENT

Mount Vernon Car Mfg. Co.

MT. VERNON ILLINOIS

Supplying, as we do  and  and to the Railroads, our thirteen factories are vitally interested in seeing the day come when Railroad purchasing can increase in volume and quality

TOILET TISSUE AND FIXTURES

Manufactured by

MORGAN PAPER COMPANY DIV.

Mills:

Lititz, Pa.

Sales Offices:

New York Chicago

Boston

ENVELOPES OF ALL TYPES

Manufactured by these eleven divisons—

Logan, Swift & Brigham Env. Co. Div., Worcester, Mass.
White, Corbin & Co. Div., Rockville, Conn.
Plimpton Mfg. Co. Div., Hartford, Conn.
Morgan Envelope Co. Div., Springfield, Mass.
National Envelope Co. Div., Waukegan, Ill.
P. P. Kellogg & Co. Div., Springfield, Mass.
Whitcomb Envelope Co. Div., Worcester, Mass.
W. H. Hill Envelope Co. Div., Worcester, Mass.
Pacific Coast Envelope Co. Div., San Francisco, Calif.
Central States Envelope Co. Div., Indianapolis, Ind.
Monarch Envelope Co. Div., Philadelphia, Pa.

AJAX DRINKING CUPS AND CABINETS

Manufactured by

PACIFIC COAST ENVELOPE CO. DIV., San Francisco, Calif.

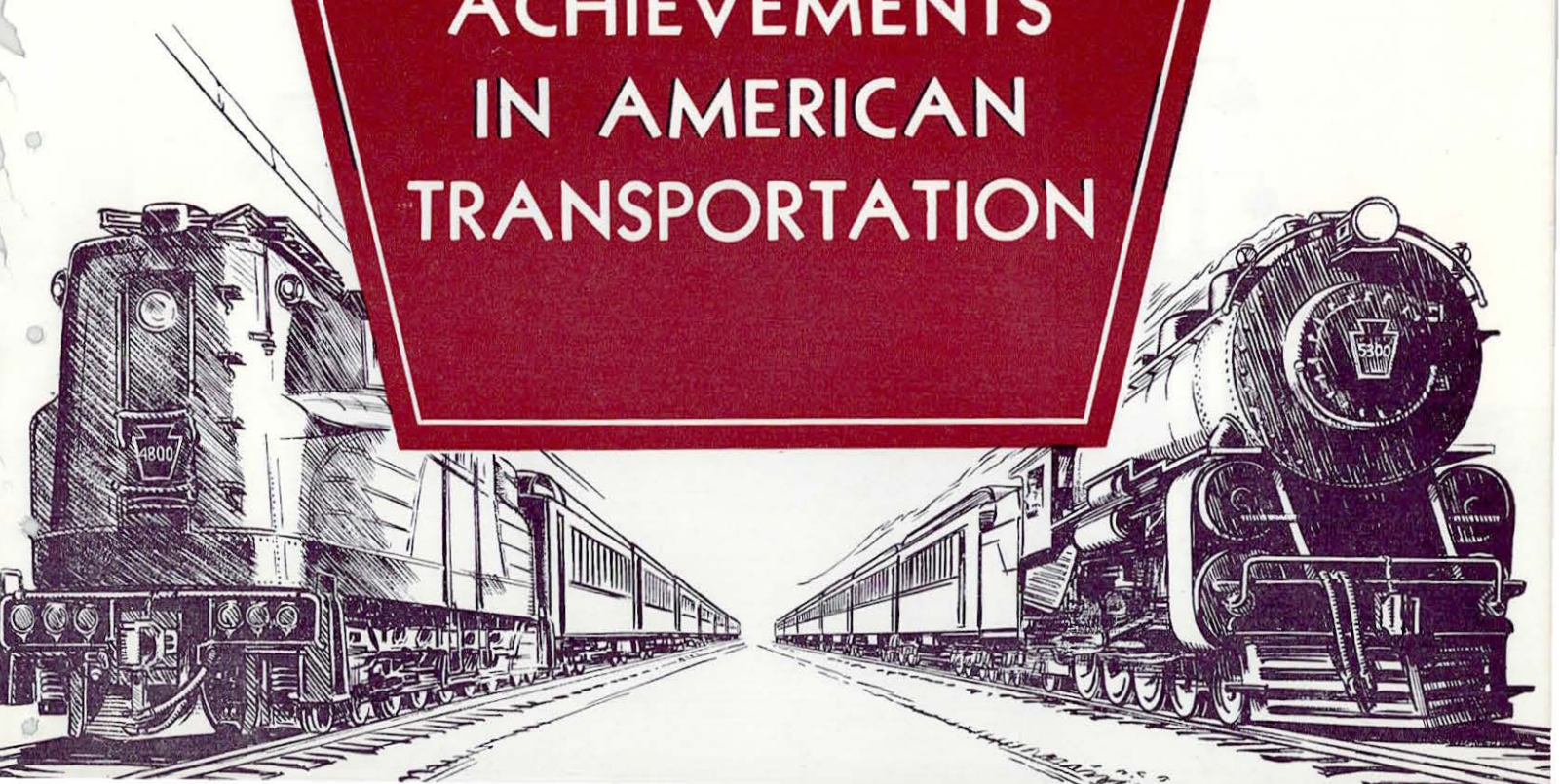
LOGAN DRINKING CUP CO. DIV., Worcester, Mass.

General Offices - Springfield, Mass.

UNITED STATES ENVELOPE COMPANY

PENNSYLVANIA RAILROAD

WITH CONFIDENCE IN THE FUTURE THE PENNSYLVANIA RAILROAD ADVANCES TO NEW ACHIEVEMENTS IN AMERICAN TRANSPORTATION



PENNSYLVANIA RAILROAD

Vast Improvement Program

THE Pennsylvania Railroad renders a service which is vital to thousands of communities and to numberless industries, both large and small. This involves a great responsibility to the American public.

With an investment of over three billions of dollars in its properties and with more than 100,000 men and women on its payrolls, the Pennsylvania sustains other heavy responsibilities to investors and to employes.

The proper discharge of these responsibilities, with due regard for the just rights and welfare of all affected, is the concern of this Railroad's management.

The record of the American battle against the great depression will reveal the Pennsylvania also in the front lines of the fight to stimulate and encourage recovery.

Throughout its entire history, the Pennsylvania Railroad has not been content merely to keep abreast of the country's transportation requirements. Its constant aim has been to foresee and anticipate them.

In the closing years of the 1920's, the Pennsylvania initiated the most extensive program of improvements and betterments in transportation history. Embraced in it was the project of complete electrification of the lines between New York, Philadelphia, Baltimore and Washington for both passengers and freight.

Associated with this were other great improvements, including complete new passenger terminal facilities in Philadelphia, the new passenger station in Newark, the building of a new tunnel at Baltimore, extensive grade crossing eliminations in that city, and the purchase of over one hundred electric locomotives with 57 more now on order.

In addition, thousands of tons of steel rails have been bought, 7,000 new freight cars have been built, several hundred passenger cars have been air-conditioned and important local improvements have been initiated or consummated in Chicago, Cincinnati, Dayton and other cities.

The economic and financial troubles of the last few years have placed wholly unforeseen difficulties in the way of continuing active progress upon the uncompleted portions of this great program. Nevertheless, realization of the magnitude of the interests which are at stake on the part of the country at large, of the communities which this railroad

PENNSYLVANIA RAILROAD

Contributes To Recovery

serves, and of its own employes, induced the Pennsylvania to forge steadily ahead in carrying to conclusion every feature of the program as originally planned.

Due to uncertainties in the normal channels for obtaining new capital, arrangements were made to obtain funds from the Government to be used for completing the New York-Washington electrification (now in its final stages of advancement), for the purchase of the required equipment, for the construction of the new fleet of freight cars, and for the new rails. Other features of the improvement program were financed from the Company's treasury.

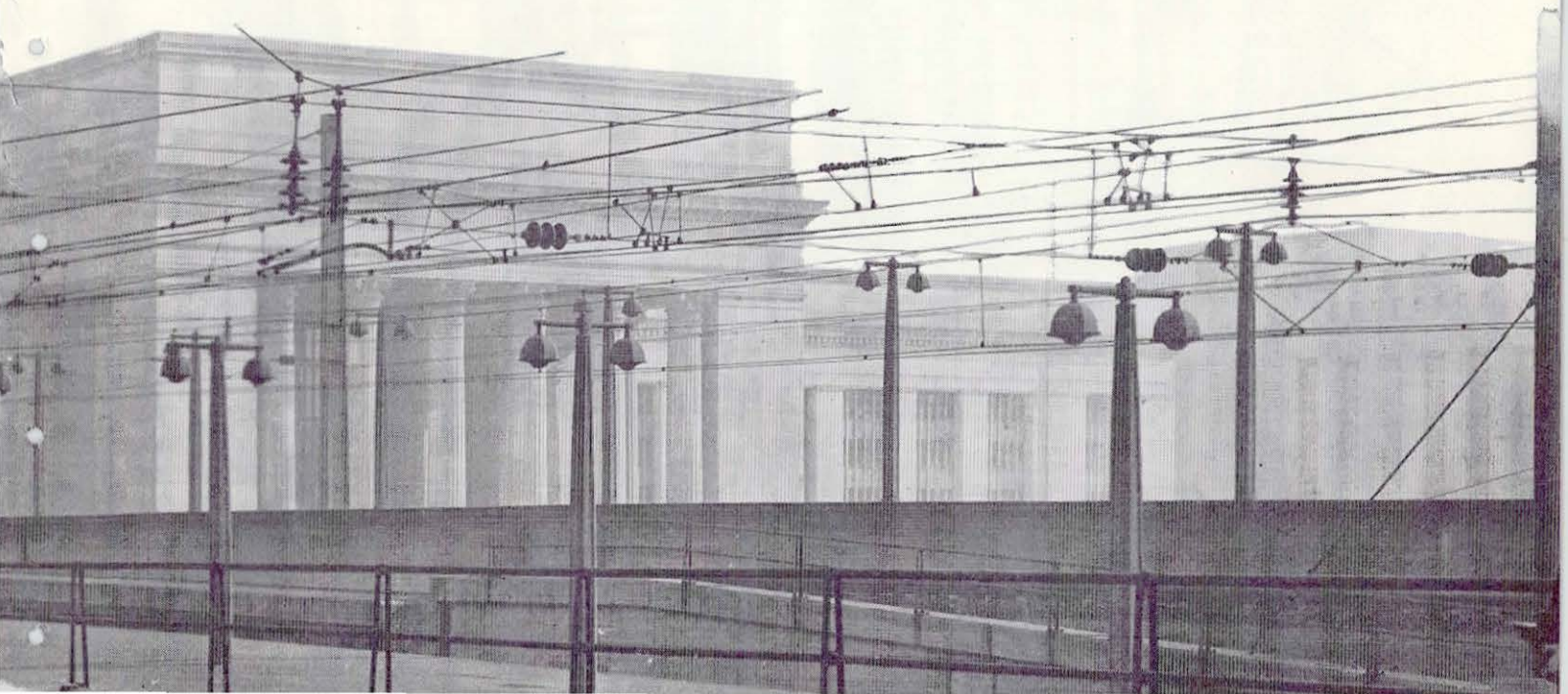
The financial assistance of the Government was rendered through the Public Works Administration, based upon the sale to it of equipment trust certificates and notes of the Pennsylvania Railroad Company. These securities mature serially and will be paid off in installments over periods of ten to thirty years.

Decision to continue progress on these important works has been a direct contribution to the revival of the heavy or capital goods industries, which have suffered the most during the depression and whose revival is perhaps more essential than any other one thing in achieving successful recovery.

In addition, employment has been given to approximately 12,000 furloughed railroad employes and to about an equal number of other workers in the great supply industries of the country.

The Pennsylvania Railroad management believes the public generally appreciates that the policy of continuing an unprecedented program of improvements in the midst of an unparalleled depression is not an ordinary or routine matter. It is the hope and belief of this railroad that the public interprets this policy as convincing evidence of faith in the fair-mindedness of the American people and in their comprehension of the truth that railroad prosperity is essential to national prosperity.

It is obvious that no railroad can prudently assume such obligations, or plan so broadly, unless it is permitted sufficient earnings to sustain its capital investment and maintain that basis of credit and confidence which is necessary for further progress. This applies not only to the Pennsylvania Railroad but to all railroads. It is a fundamental and exceedingly important truth.



PENNSYLVANIA RAILROAD

Serves A Vast Empire

THE Pennsylvania Railroad operates 12,000 miles of line and 28,000 miles of track. It serves thirteen States, including the most populous in the Union. Its rails link together the nation's metropolis and its capital, nine out of its ten largest cities, and thousands of other communities located within the most important manufacturing, mining and industrial areas of the American continent.

In the territory which this railroad serves are located more than half of the nation's population and upward of two-thirds of its industrial, mineral, commercial and agricultural wealth.

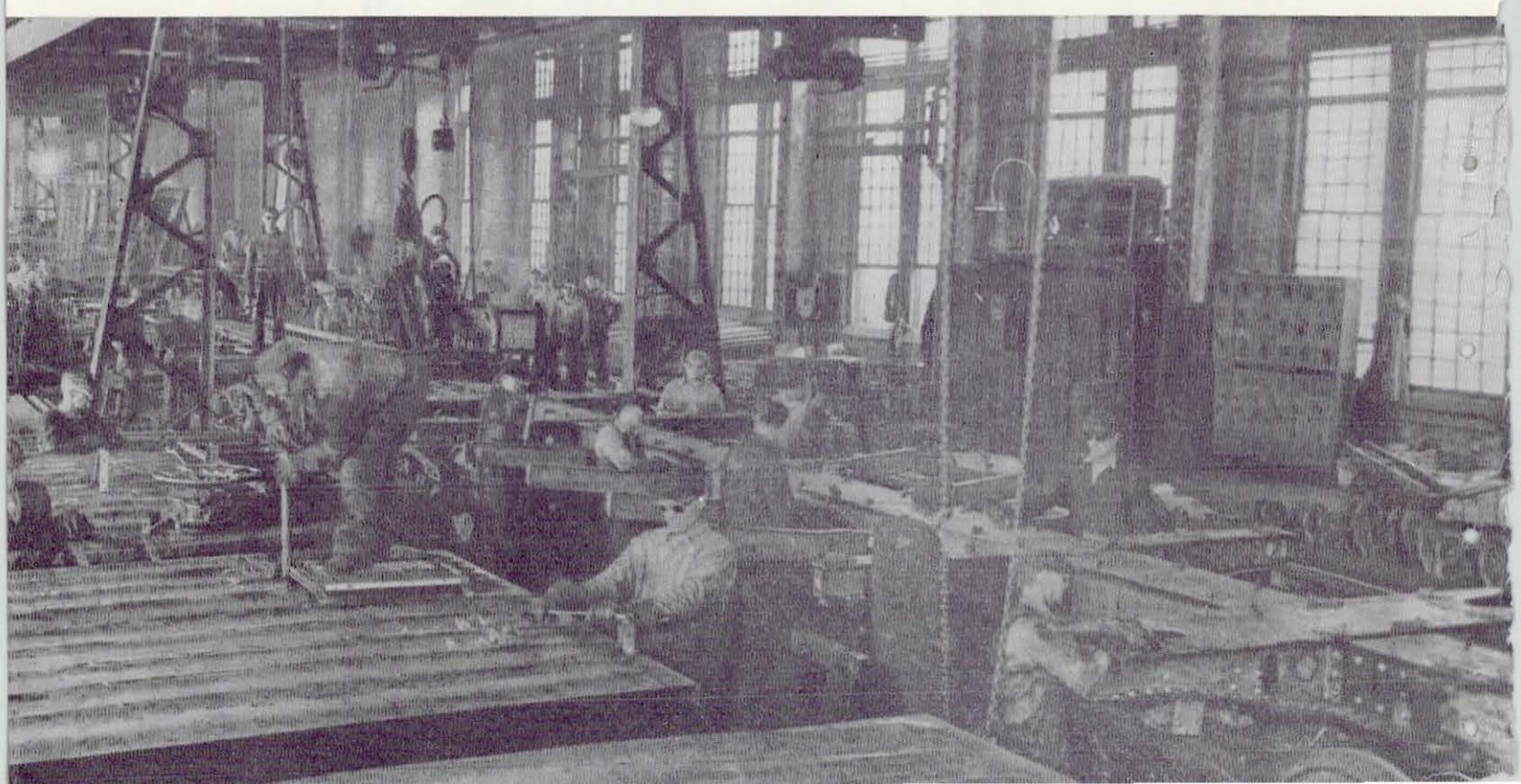
To many of the communities, enterprises and economic pursuits of this highly developed territory, the service of the Pennsylvania Railroad is an absolute essential. The importance of that service, moreover, is not limited merely to the area of the Company's own lines, but extends throughout the Nation.

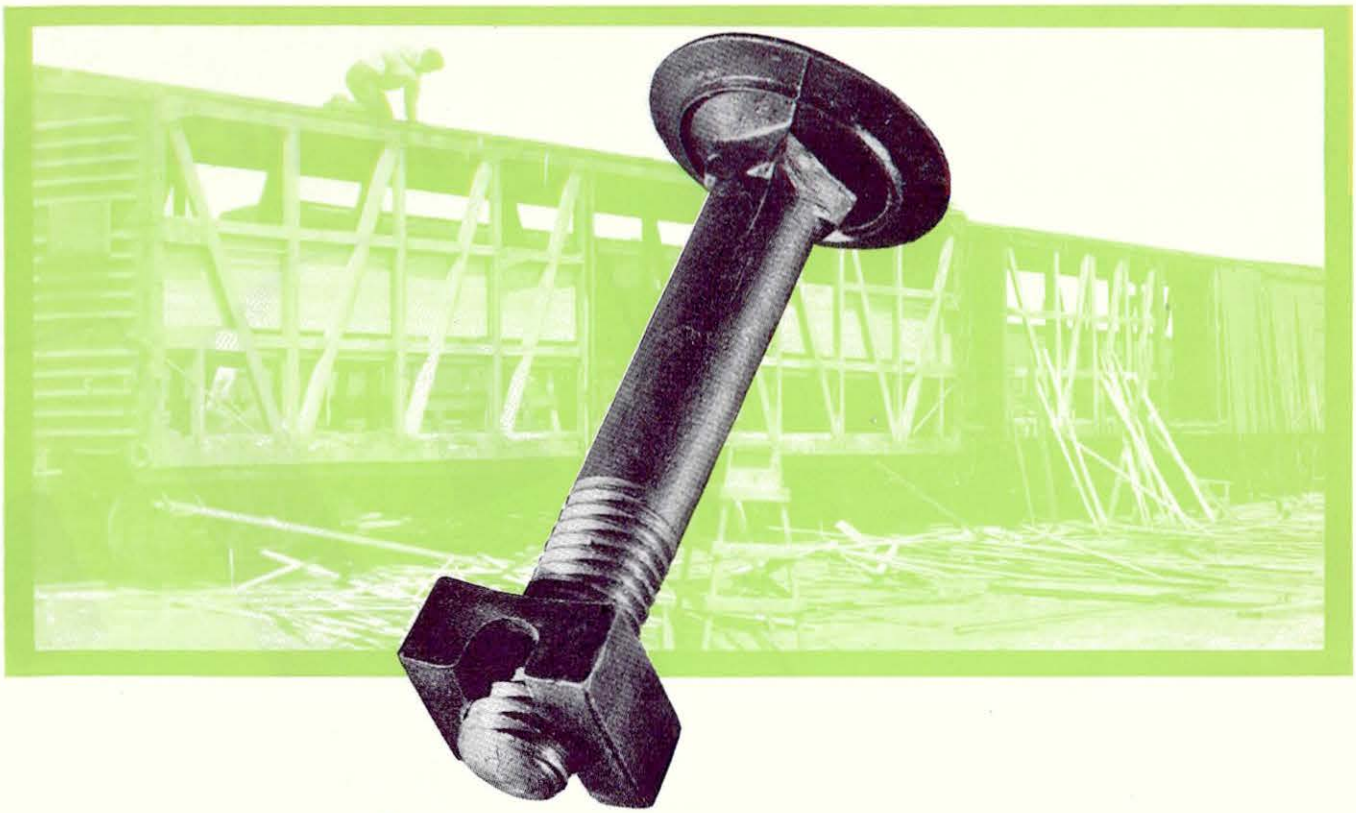
As a taxpayer, the Pennsylvania contributes to the support of the Federal Government and the Governments of states, counties and municipalities through which its lines pass. The public activities which the taxes of this railroad help to maintain embrace virtually every governmental agency in the country, whether national, state or local.

In normal periods the Pennsylvania provides passenger and freight transportation to the amount of $700,000,000 in a year, and the disbursement for wages alone is some $300,000,000. In normal times the Pennsylvania buys annually well over $100,000,000 worth of material, fuel and supplies in the American markets. Most of this is spent in purchasing the products of the heavy or capital goods industries.

The general low volume of business, due to the depression and to unregulated and subsidized competition and other unfavorable factors, has reduced the Pennsylvania's revenues some 50% below what might be considered normal, enforcing every possible economy consistent with safe operation and the preservation of the property.

While the effect of economy measures has, to some extent, been offset by the railroad's ability to continue its great improvement program and provide employment not otherwise possible, nevertheless increased earnings would unquestionably justify a more liberal purchasing policy, with resulting material aid to employment and production volume in the important railroad supply and equipment field.





A YEAR'S WORK FOR 200 MEN

● Bolts and nuts . . . one of the small items in freight car construction . . . but the number required to repair just *one* box car will provide a job in a modern bolt factory for a man for half a day.

An estimate states that the number of box cars needing general repairs during the coming year will exceed 100,000. If the railroads can obtain funds to make these needed repairs, *production alone* of the necessary bolts and nuts will provide work for 200 men for a year. To apply these bolts will require at least an equal amount of labor in railroad shops. Bolts and nuts for new cars will augment this figure in like proportion.

Small item that it is, the right kind of a bolt and nut can be an important factor in preserving tight construction and prolonging the life of sheathing, running boards and flooring. That is why railroads have found it economy to specify "M-F" Water-Tight Bolts and Speed lock nuts.

MAC LEAN-FOGG LOCK NUT CO., 2649 North Kildare Avenue, CHICAGO, ILL.

WHERE BOLT HEADS CONTACT WOOD . . . USE

"M-F" WATER-TIGHT BOLTS

NOT MERELY CORROSION RESISTANT

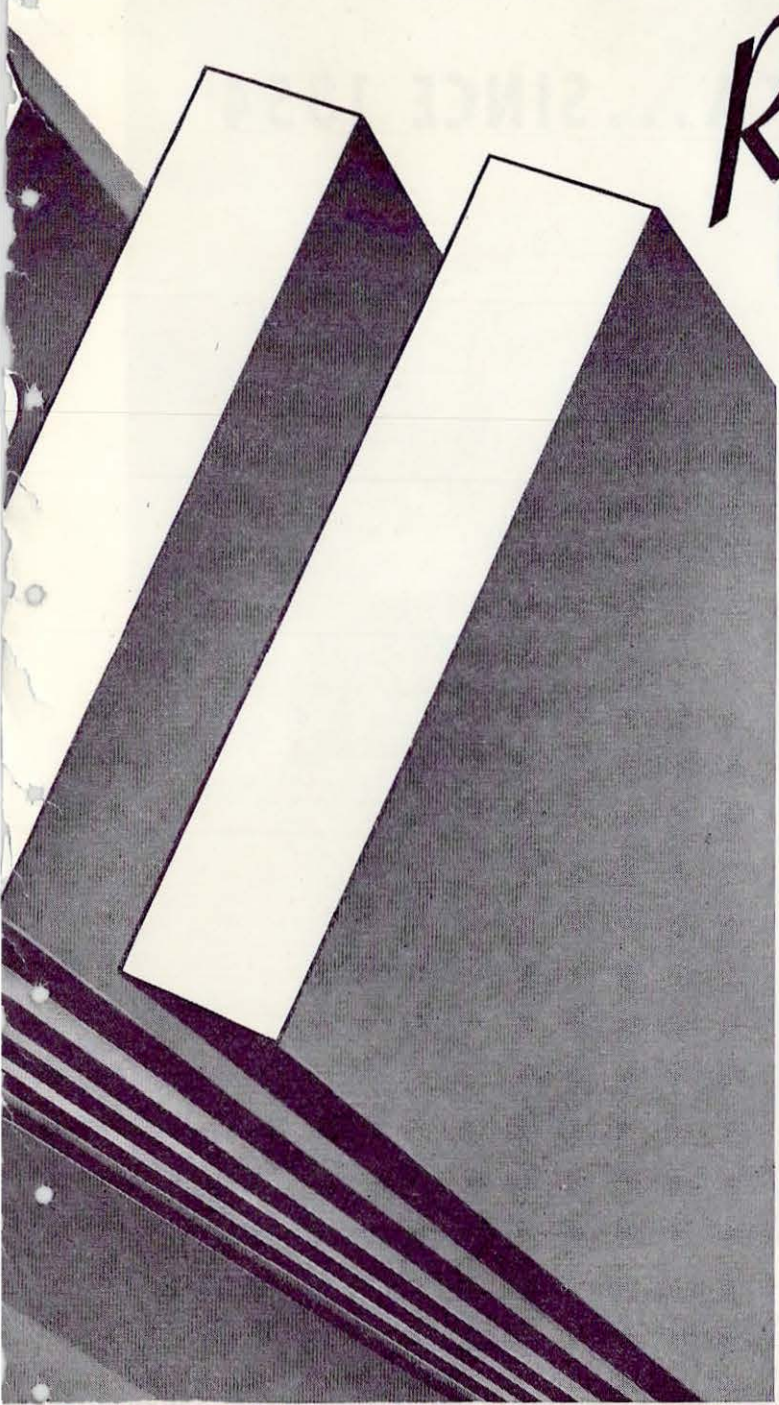
THE MARK..
OF A GENUINE
RUST PROOF STEEL
FOR RAILROAD SERVICE

RUSTLESS IRON CORPORATION of AMERICA

BUT RUST PROOF

Revolutionary

IN PHYSICAL PROPERTIES ENDURANCE — VALUE



RR-11 eliminates maintenance cost due to corrosion and therefore is ideal in the design of modern railway equipment.

RR-11 is rust proof, not only under ordinary atmospheric conditions, but also under other forms of corrosion prevalent in railroad operation. Therefore, the following physical properties may be employed to the maximum desired limits:

PHYSICAL PROPERTIES

Yield Point, Lb. per Sq. in.	Tensile Strength, Lb. per Sq. in.	Elongaton, % in 2 in.
45 to 85.000	75 to 120.000	30 to 15

RR-11 may be welded and can be worked hot or cold.

Detailed information supplied upon request.

Licensee of Chemical Foundation, Inc
Patent number 1,316,817
1,339,378

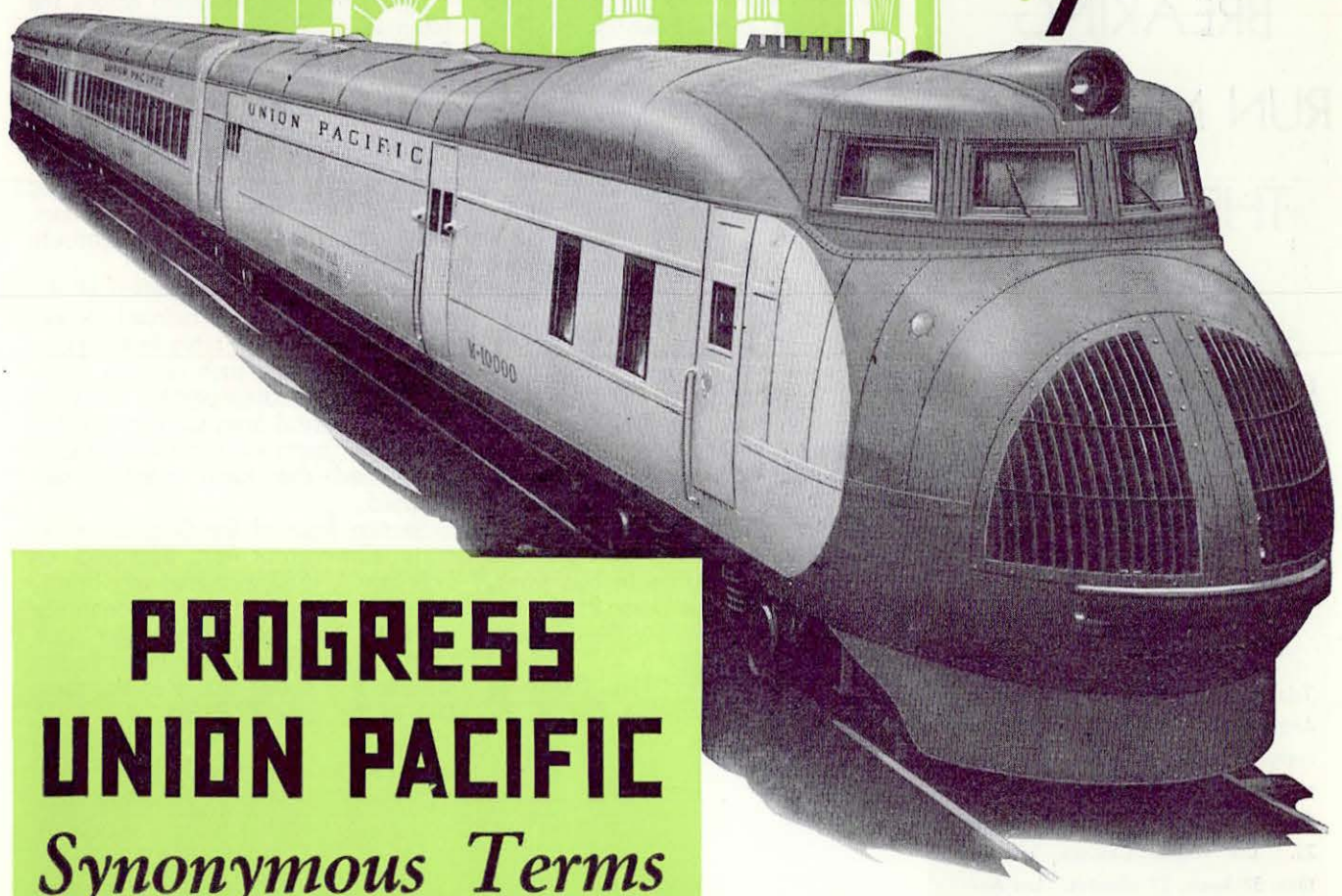
The only manufacturer engaged exclusively in the production of Rust-proof and Stainless Steels.

· 1001 EDISON HIGHWAY, BALTIMORE, MD.

For eighty years The Barrett Company has been supplying materials to meet the exacting requirements of railroad engineers . . . Barrett Specification Roofs and other Built-Up Roofs for great terminals like the Grand Central and the Pennsylvania Station in New York . . . Asphalt Shingles and Roll Roofings for steep roofed structures . . . Waterproofing . . . Creosote Oils for preservation of trestles, ties, etc . . . Protective Paints . . . Front End Paint . . . Roof Repair and Preservative Materials . . . Tarvia and Tarvia-lithic, paving materials for grade crossings, platform walks, etc. Phone, wire or write for complete information on any of these products.

THE BARRETT COMPANY . . . 40 RECTOR STREET, NEW YORK, N. Y.

TOMORROW'S TRAINS *Today*



PROGRESS UNION PACIFIC

Synonymous Terms

The first of the streamline trains was a Union Pacific project. More than ten million lines of newspaper publicity and countless thousands of photographic reproductions have hailed these trains - and this is not merely publicity for the Union Pacific. It is publicity for the railways, in general, proof that the railways are progressive.

MORE THAN FIVE-MILLION PERSONS HAVE VIEWED THE NEW U. P. TRAINS

The UNION PACIFIC *System--*

THUMBNAIL REVIEW OF THE RECORD-BREAKING RUN MADE BY THE UNION PACIFIC STREAMLINER M-10001

Trip began at 10 p.m. from Los Angeles, Oct. 22, 1934. Arrived Chicago, La Salle Street Station, 2:47 p.m., Oct. 24. Arrived New York, Grand Central Station, 9:55 a.m., Oct. 25. Los Angeles-Chicago, elapsed time, 38 hours, 57 minutes. Los Angeles-Chicago former record, 1905, 44 hours, 54 minutes. Los Angeles-New York, elapsed time, 56 hours, 55 minutes. Coast-to-coast former record, 1906, 71 hours, 23 minutes. World's record speed, between Dix and Potter, Nebr., 120 m.p.h. World's record highest average speed for 500 miles from Cheyenne, Wyo., to Omaha, 507 miles in 6 hours; average, 84.49 m.p.h.

IN 1933 the Union Pacific System spent $85,653,700, or $74,612,668 in operating expenses and $11,041,032 in taxes. In 1929 the total expenditures amounted to $164,116,129, or $147,026,561 in operating expenses and $17,089,568 in taxes. This represents a decreased expenditure by the Union Pacific in 1933 of $72,413,893 in operating expenses and $6,048,536 in taxes.

A large percentage of these expenditures went into purchases from the durable goods industry, so that, even under present business conditions it may truthfully be said that the Union Pacific is a good customer—a very good customer indeed.

But, as indicated by the 1929 figures, the Union Pacific could be a much better customer of the durable goods industry and every other if it were not for certain conditions beyond its own control that retard the development of its traffic.

One of the greatest deterrents to being a better customer is the loss of traffic to other forms of transportation which are not handicapped by restrictive legislation.

The competition with unregulated carriers presents a problem difficult of solution. As one of the pioneers in pick-up and delivery service, and through its subsidiaries in bus transportation service, the Union Pacific has made progress in meeting the competition of motor vehicles.

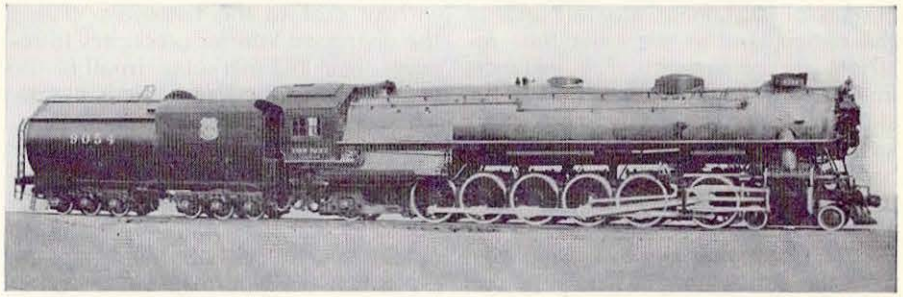
The Long and Short Haul Clause of the Interstate Commerce Act is another matter, and until relieved of this handicap there is little that can be done about it.

Competition between rail and water routes for the business of the Pacific Coast began with the completion of the first transcontinental railroad—the Union Pacific-Central Pacific—in May 1869. At that time the water competition consisted of sailing vessels via Cape Horn, later supplemented by competition via the Panama route, freight being trans-shipped across the Isthmus of Panama by the Panama Railroad. The time of transit via Cape Horn was about four months, which was reduced by steamship service through the Straits of Magellan to between 50 and 60 days. In 1907 a route was formed with Tehuantepec Railroad across the Isthmus of Tehuantepec which reduced the time enroute to about 30 days.

Initially with the completion of the first transcontinental railroad it was the custom to make rates to the ports without observing such rates as maximum at intermediate points. As other transcontinental lines were completed and other ports on the Pacific Coast established the same practice was adopted.

Section Four of the Original Interstate Commerce Act, approved on February 4, 1887, provided very briefly a prohibition against charging more for a shorter haul than for a longer haul, under substantially similar circumstances and conditions, over the same line, in the same direction.

a GOOD CUSTOMER



The Panama Canal was opened on August 13, 1914. The rates placed in effect via the steamship lines operating through the Canal were made materially lower than those previously applied via the Tehuantepec route. The time in transit was substantially shortened and the traffic between the Atlantic and Pacific coasts was at once diverted in large volume from the transcontinental rail lines to the Canal routes. The time now via the intercoastal route between New York City and Pacific ports is from 14 to 21 days, this difference in time depending upon the service between the first and last port of call respectively.

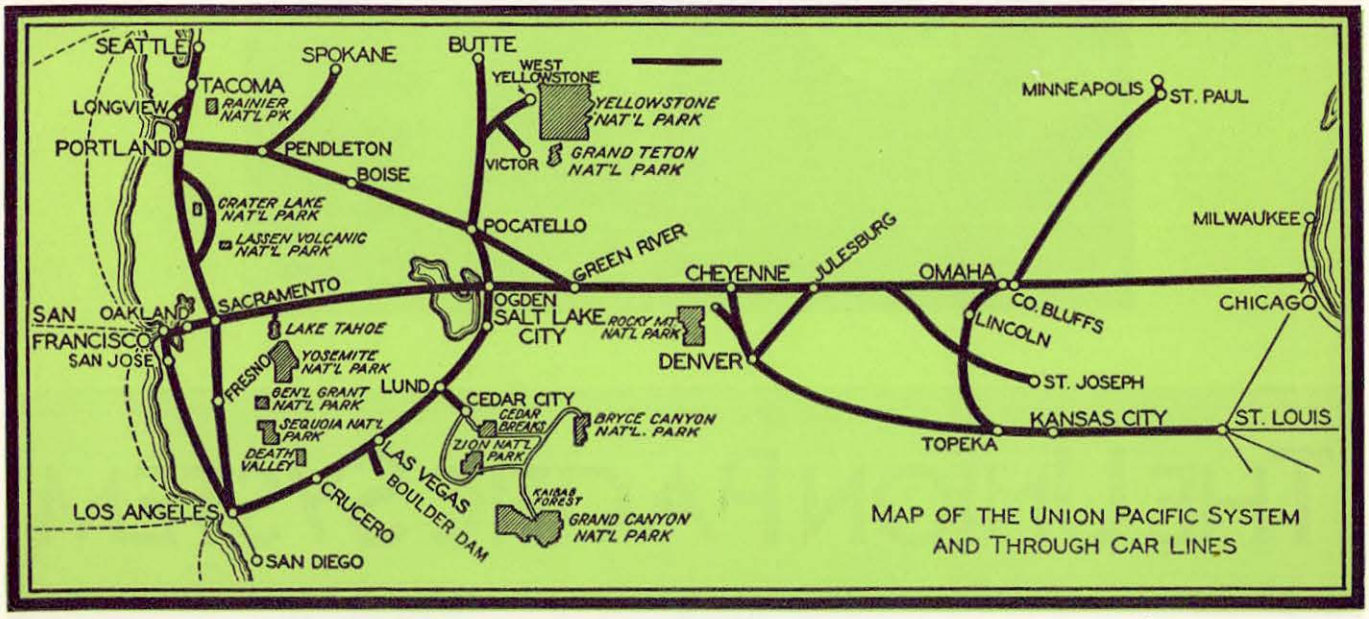
This condition continued until the War period when the Panama Canal lines withdrew their service to engage in more profitable trans-oceanic traffic. During the absence of the steamship lines from the intercoastal service via the Canal route the entire traffic moving between Atlantic and Pacific ports was, of course, handled by the transcontinental lines. It was indeed fortunate for the industry of the Pacific Coast and for the safety of the nation that the transcontinental lines were able to assume the task of transporting the entire traffic.

Beginning with the resumption of service on the intercoastal route by the canal steamship lines in 1920 water competition via this route steadily increased to the extent that by 1932 there existed practically a monopoly of traffic to and from the ports by the canal lines. Great strides have been made by the canal lines in the development of traffic via the Panama Canal route. The tonnage includes all sorts of traffic: heavy articles such as steel commodities of all kinds, manufactured articles of every variety, including within the later years a substantial volume of set up automobiles coming from points as far inland as Detroit, Michigan, and South Bend, Indiana, and including eastbound some perishable commodities. Canned goods, dried fruits and other California products are now moving eastbound via the Panama Canal and through Atlantic and Gulf ports into a large part of the eastern section of the United States. The territory Pittsburgh, Buffalo and east now receives substantially all of this variety of traffic via the Canal route, and a very large portion of such traffic moving to points in Ohio, Indiana and surrounding states has been taken by the Canal lines.

These examples illustrate the powerful effect of the competition of the water route which is able to establish rates so much below the level of normal reasonable railroad rates that it has proved impossible for the rail lines to meet this competition in the absence of relief from the provisions of the Transportation Act.

The ability of industry tributary to tidewater to market its products through the medium of lower transportation costs has compelled a relocation of interior manufacturing plants, which institutions had previously enjoyed a substantial business in the Pacific Coast area. While this situation may not be wholly controlling, it is significant from figures taken from the manufactures census that within the nine middle western states, including Illinois and Missouri, accredited manufacturing industries dropped from 55,968 in 1919 to 37,174 in 1927.

This continuing diversion of traffic from the rail routes to the Panama Canal route throws upon the interior of the country a larger share of the



MAP OF THE UNION PACIFIC SYSTEM AND THROUGH CAR LINES

THE UNION PACIFIC SYSTEM *A Good Customer*

burden of sustaining the railroads of the nation, and at the same time restricts its commerce. For instance, iron and steel articles produced in the state of Colorado and formerly marketed in large volume in the states bordering the Pacific Ocean now move to those states in much smaller quantities, having been driven out of the Pacific Coast markets by competition from the states along the Atlantic and Gulf Coast, which traffic moves at lower rates via the Panama Canal. Again, lumber produced near the Pacific Coast is moving in large quantities via the Panama Canal route and being marketed and distributed in increasing volume in states bordering the Atlantic seaboard.

In order to relieve the producers in the middle west from this economic barrier that has arisen and enable them to regain their former markets on the Pacific Coast, there is being agitated the construction and extension of inland waterways. This construction would cost the taxpayers heavily.

On the other hand, if the transcontinental carriers were afforded the necessary relief from the Fourth Section of the Act, those carriers would, without cost to the taxpayers, enable the distressed interior producers to recover their lost markets. In all of the years prior to the War, this is exactly what these railroads had been doing for the producers dependent upon their lines for access to coast markets. The only obstacle which prevents their doing so at this time is their inability to obtain Fourth Section relief for the protection of their revenues on other traffic not affected by water competition.

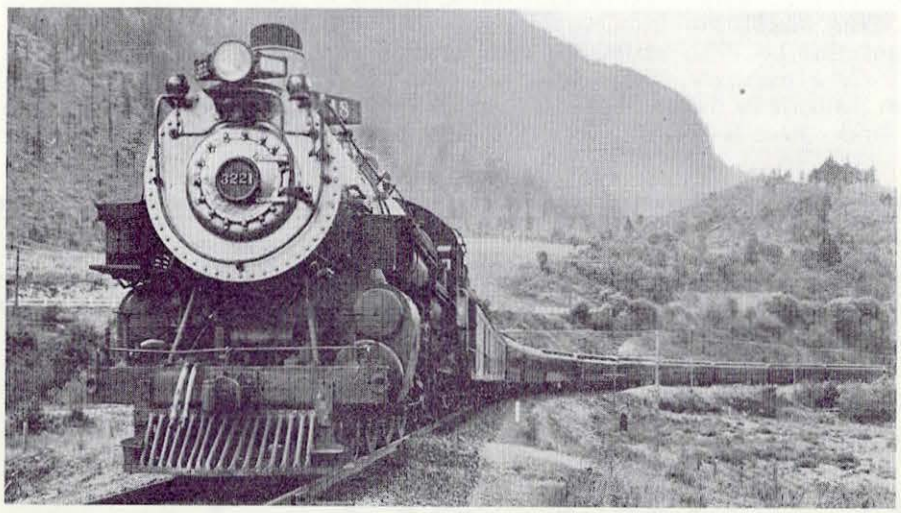
The Union Pacific asks that general recognition of the policy of affording the railroads relief under the Fourth Section of the Act be established so as to give them equality of opportunity with the steamship lines. Under such policy so established the Interstate Commerce Commission will be free to deal with changes in these rates in the same manner as in other rate changes.

It is also necessary in order that stability may be given the rate structure, business confusion avoided through abrupt and radical rate changes, and railroads and steamship lines alike be assured of earnings necessary to provide a satisfactory service, that the steamship lines be brought under a public regulation co-ordinated with that of the railroads. Further, that the steamer lines, as among themselves, be protected against excessive and therefore destructive competition, injurious to the welfare of transportation both by rail and water.

The railroads have the plants, the organization and the personnel to carry a very much larger volume of traffic than they have enjoyed for a great many years past.

The diversion of traffic to the Canal formerly enjoyed by the railroads has put a greater burden of support upon the traffic remaining. The industries of the far west especially have to look to eastern sections of the country for their principal markets. The cost of transportation is therefore a factor of marked importance.

The Union Pacific asks no special favors in the way of limiting other forms of competition, but does ask recognition of the policy of affording the railroads relief under the Fourth Section of the Act so as to give them equality of opportunity with the steamship lines, the effect of which would be increased volume of traffic, and increased volume means more employment of labor and increased purchases of durable and other goods.



THE UNION PACIFIC SYSTEM

Columbia High Voltage Signal Cells increase safety and reduce the cost of operation.

Gredag Lubricants — provide efficient lubrication under severe operating conditions at low cost.

National Pyramid Carbon Graphite and Metal Graphite Brushes for electrical machinery.

Eveready Prestone, the Perfect Anti-Freeze, protects water-cooled equipment in sub-freezing weather.

ONE MOMENT PLEASE

RESTORED RAILWAY EARNINGS WILL HELP US ALL

THEY would enable us to find a broader market for all our products. Not only would railways buy more, but the larger distribution of railway compensation and other expenditures for equipment, materials and supplies will stimulate other industries which also use our products.

During this period of uncertainty, true economy must give full consideration to quality in the selection of necessities, for there is no substitute for the economy and reliability of quality. National Products—all quality products, protect the service and keep expenses down. They have helped the railways and other industries to increase the efficiency and safety of operation.

NATIONAL CARBON COMPANY, Inc.
RAILROAD DIVISION
230 North Michigan Ave. Chicago, Illinois
Unit of Union Carbide and Carbon Corporation

Eveready Ignitor Dry Cells—for dispatchers' telephones and motor car ignition. Eveready Railroad Cell for light or heavy service.

Eveready Flashlights are dependable and durable for general inspection service

Eveready railway super-service flashlight battery.

Eveready 409 Lantern Batteries for trainmen's electric hand lanterns.

Meeting the Demand for

SPEED · WEIGHT-SAVING · SAFETY

In main engine frames, cross heads, driving boxes, wheel centers and other severely stressed parts of modern locomotives . . . in the vital parts of stream-lined trains . . . in the leaf springs and coil springs of cars, locomotives and tenders—Vanadium Steels assure safety and dependability.

The useful strength of Vanadium Forged Steels—fully 50% greater than that of carbon steel forgings of the same section—permit of appreciable reductions in weight. The higher strength, superior shock resistance and higher impact values of Vanadium cast steels permit similar reductions in the weight of cast parts. In leaf springs and coil springs, Vanadium Steels give maximum service with minimum weight.

Metallurgists of the Vanadium Corporation will be glad to assist you in designing for speed, weight-saving and safety.

VANCORAM

FERRO-ALLOYS
of vanadium, silicon, chromium, titanium, and silico-manganese, produced by the Vanadium Corporation of America, are used by steel makers in the production of high-quality steels.

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CHICAGO PITTSBURGH *Bridgeville, Pa.* DETROIT

Plants at Bridgeville, Pa., and Niagara Falls, N.Y.
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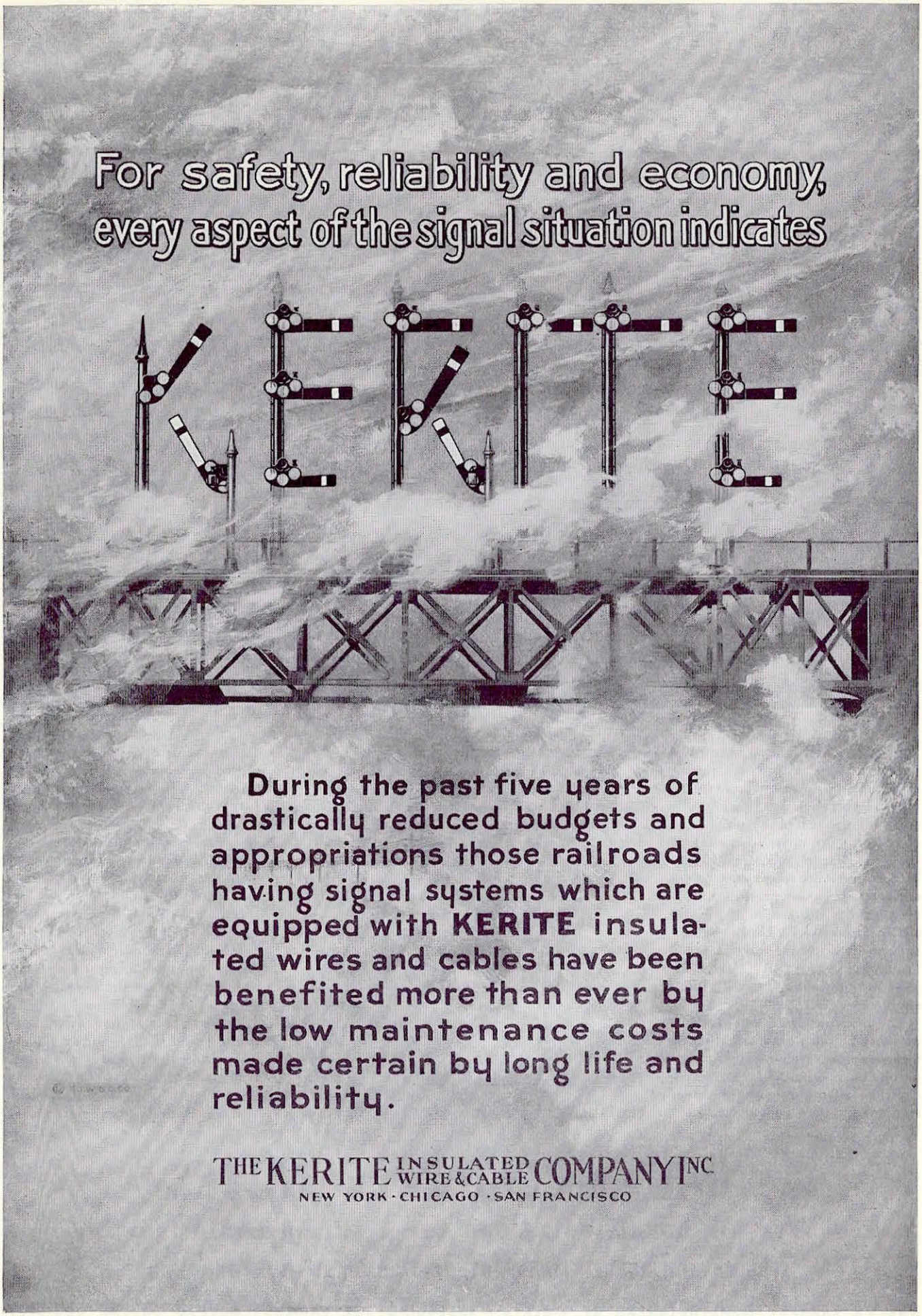
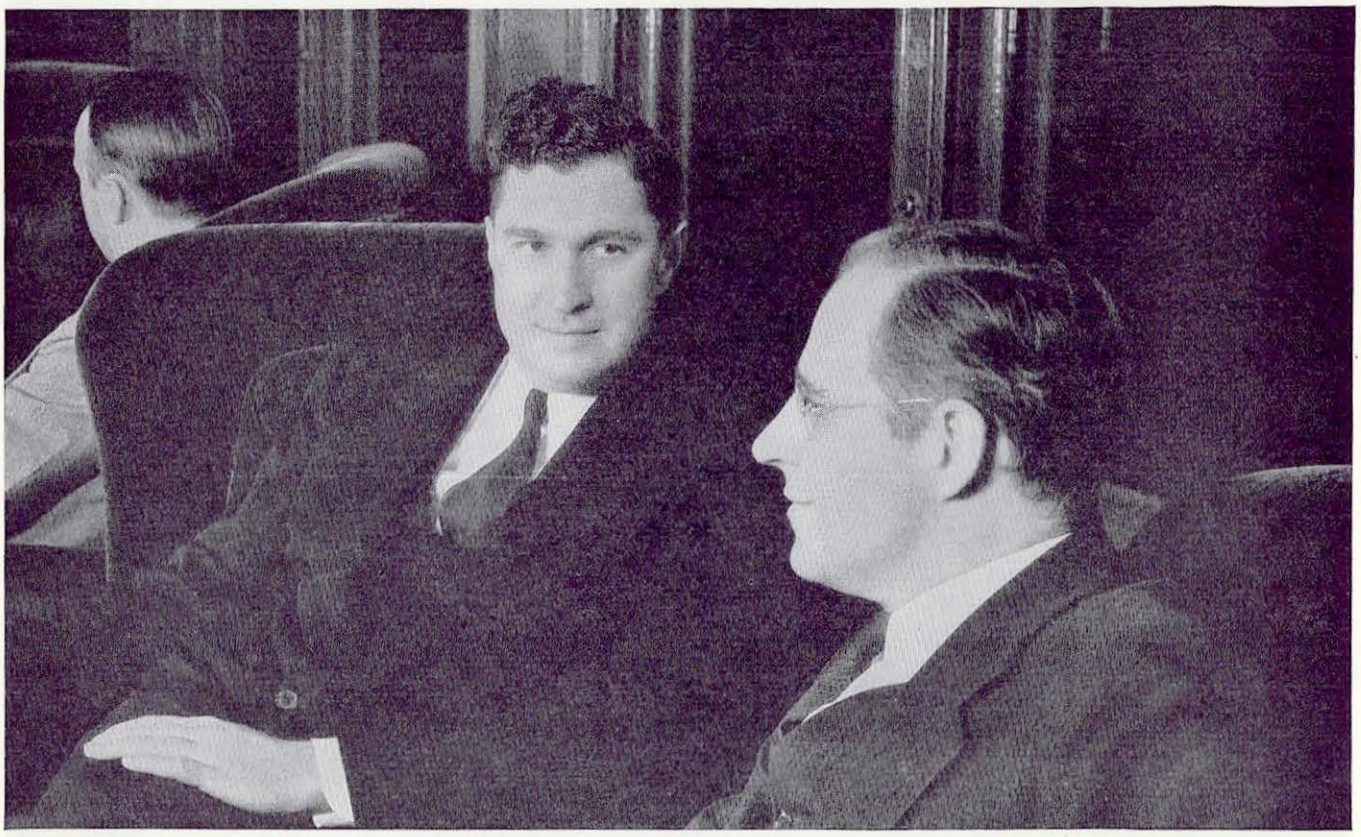
VANADIUM STEELS

for strength, toughness and durability


For safety, reliability and economy,
every aspect of the signal situation indicates
KERITE
During the past five years of drastically reduced budgets and appropriations those railroads having signal systems which are equipped with KERITE insulated wires and cables have been benefited more than ever by the low maintenance costs made certain by long life and reliability.
THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK · CHICAGO · SAN FRANCISCO

"I LIKE TO TRAVEL ON THIS ROAD NOW"



Travelers are quick to recognize improvements in railway equipment that make traveling more comfortable. One railway executive said recently, "I am quite positive that modernization and air conditioning of our equipment have had the effect of largely increasing our traffic."

More and more railway executives are becoming convinced that modernization is the secret of turning red ink into black. That's the reason for the extensive and constantly growing use of "D-R" Drives for air-conditioning and car-lighting equipment.

These famous drives offer benefits no other belt can give... that's why there are more mechanically air-conditioned cars with "D-R" Drives today than all other types of drives combined. These benefits are—

1. *Adaptability* to all types of generator arrangement and generator capacity.

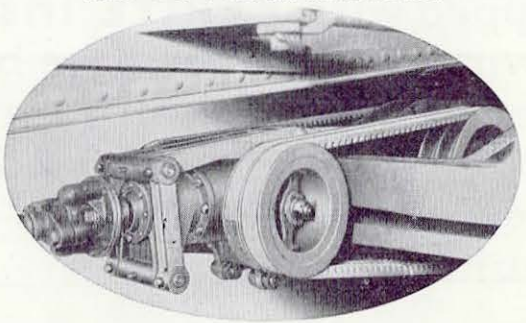
2. *Greater economy* — lower maintenance cost — records of over 200,000 miles without repairs.

3. *V-Belt efficiency with unusual simplicity*—the only V-Belt that successfully takes a connector or fastener which can be applied anywhere easily and quickly.

4. *Greater safety*—in an emergency one belt in a multiple belt drive will pull the load.

5. *Weather-proof*—withstands extreme heat and sub-zero temperatures—made with anti-freeze rubber—preshrunk and waterproofed.

A typical installation of the 15 K. W. combination "D-R" V-Belt and Gear Box Drive.



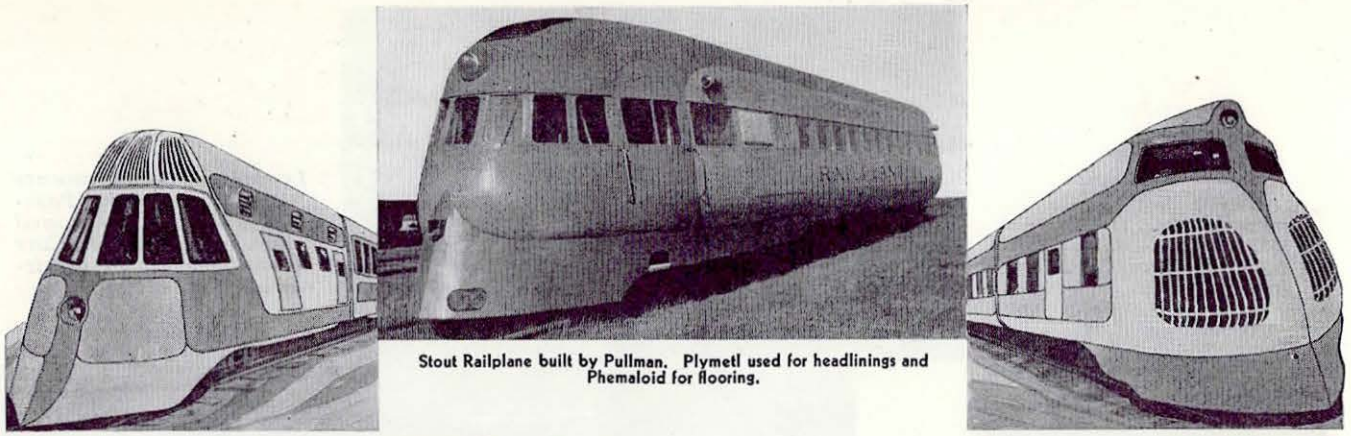
These five major reasons why "D-R" V-Belt Drives are used so extensively by railroads and leading equipment manufacturers are only the highlights on the exclusive advantages of "D-R" Drives... advantages that apply to both Air-Conditioning and Car Lighting Equipment. For these and many other reasons, it pays to use "D-R" V-Belt Axle Drives for *your* equipment. We suggest that you get *all* the facts.

"D-R" V-BELT AXLE DRIVES

For Air-Conditioning and Car-Lighting Equipment

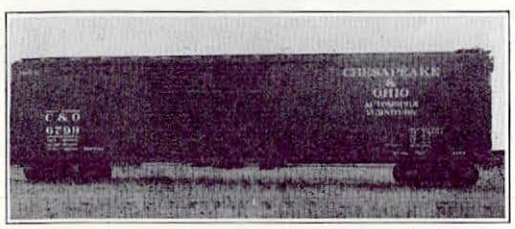
THE DAYTON RUBBER MANUFACTURING COMPANY • DAYTON • OHIO

WORLD'S LARGEST MANUFACTURERS OF V-BELTS — INCLUDING THE FAMOUS ENDLESS DAYTON COG-BELT

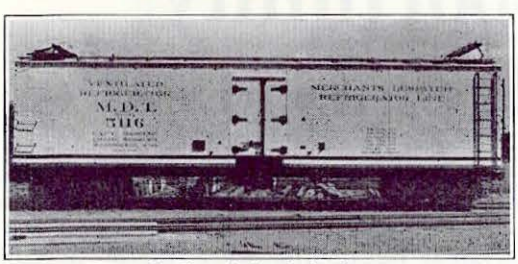


Stout Railplane built by Pullman. Plymetl used for headlinings and Phemaloid for flooring.

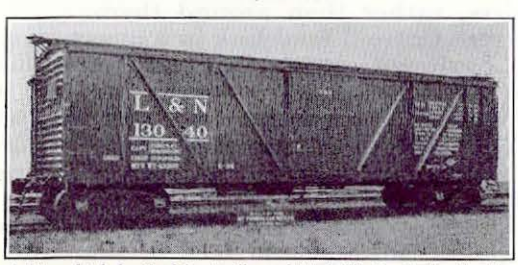
HASKELITE'S *Modern* PANELS
FOR *Modern* TRANSPORTATION



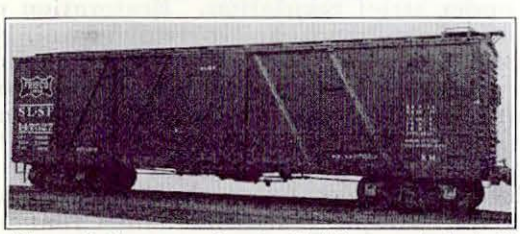
Ten of these cars have been constructed with Phemaloid sheathing (built by Mt. Vernon Car Mfg. Co.).



Merchants Despatch, Plymetl sheathed refrigerator car maintains low temperatures.



A Phemaloid sheathed Louisville and Nashville Car (resheathed by Mt. Vernon Car Mfg. Co.).



After nearly three years of service this Frisco car, sheathed with Phemaloid is as tight today as the day it was built.

WITH the impetus which Lindbergh's flight (made in a Haskelite-equipped plane) gave to the demand for speed and streamlining we, today, find Haskelite products in every field of transportation. Practically all of our large airliners have floors and paneling of Haskelite or Plymetl. On the high seas, America's finest liners, the T. S. S. Washington and Manhattan, are paneled with approximately one-half million square feet of fire-resistant Haskelite.

On land, Haskelite and Phemaloid are used in fleet buses, the Electric Railway Committee's streamline model street car for roof, headlining, and floor. Now Haskelite, and its associate products, Plymetl and Phemaloid, having those inherent properties—lightness, strength, and stamina, synonymous with speed and streamlining are setting the pace in this—the steam railway field.

For the new type of streamline passenger trains, Plymetl, the foremost metal covered plywood (40 to 50 times as stiff as steel the same weight) has been selected for headlining, partitions, and wainscoting. Thousands of square feet will be used by the American Car and Foundry Company in building the two new Baltimore and Ohio trains, and by the Goodyear Zeppelin Corporation in the construction of the New York, New Haven and Hartford train. Haskelite, the quality plywood; Plymetl, plywood faced with steel, Cor-Ten steel, stainless steel, Aluminum, and other alloys; Ornametl a form of Plymetl (thin veneer on sheet metal); all have wide applications in passenger car construction.

On the other side of the picture, Phemaloid, resin glued Haskelite is extensively used in freight car construction because it is light, strong, and makes a tight car. The illustrations on this page depict various types of cars in which Phemaloid has been used for sheathing, ceilings, and floors. Haskelite products are also used for passenger car seat backs; in brick and merchandise containers; in fact, in every phase of transportation.

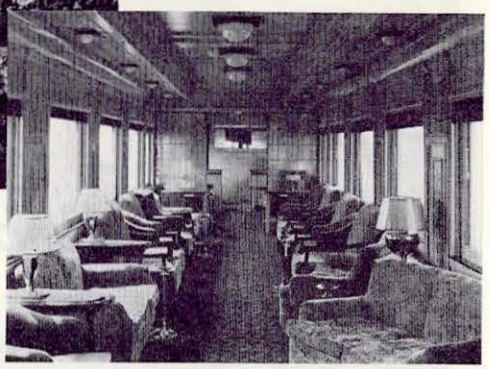
HASKELITE MANUFACTURING CORPORATION

208 WEST WASHINGTON STREET, CHICAGO ILLINOIS.

Heavy-Duty, High-Speed Rio Grande Roadbed, Protected by Automatic Safety Signals

Luxurious Appointments Assure Comfort for Passengers on Air-Conditioned Lounge-Observation Cars aboard The Scenic Limited and The Panoramic

Retouched Photograph, showing East Portal, Moffat Tunnel, piercing Continental Divide, James Peak Route, D. & R.G. W.



Public Welfare Demands Equality of Opportunity for the Railroads

The public is prone to think of the "railroad problem" as something about which railroad managements alone should worry, but there exists a transportation problem in which all the people have a vital interest. So pressing has become the need for its solution that determination of a definite federal transportation policy is regarded as a most important factor in speeding business and industrial recovery.

The railroad industry is gigantic. Its huge investment is widespread among countless individuals. Its ability to furnish normal employment affects directly the welfare of more than one million American families. Its ability to purchase from the durable goods industry affects indirectly hundreds of thousands of workers.

The Denver & Rio Grande Western, serving the intermountain region of Colorado, Utah and New Mexico, has never faltered in its faith in this territory. Nine years ago the Rio Grande embarked on an improvement program by which its primary main lines attained the high standard set for American railroads. These improvements involved an expenditure of more than 20 millions of dollars for heavier rails, better grades and alignments, permanent bridges, terminals, ballasting, and and automatic signals, and more than 13 millions additional for new, modern locomotives, freight and passenger cars, and standardization of existing equipment. Schedules comparable with those maintained by lines which do not cope with similar physical handicaps were made possible on the route which chooses to go through mountain barriers, rather than around them.

The Dotsero Cut-off, final link in a direct transcontinental railroad serving Denver, western Colorado and Utah, was placed in service on June 16, 1934. The Rio Grande again demonstrated its faith in the future by providing, at heavy cost, this new line, sought for more than half a century by Colorado and Utah.

Other forms of transporation, flourishing because of public subsidy and lack of regulation, have cut heavily into the earnings of the railroads, laboring under strict regulation. Restoration of confidence to the railroads, and increased earnings, would speed the expenditure of many millions of dollars, required to bring up to standard existing equipment. Possibility of attaining new railroad standards presents an unlimited field for activity in the durable goods industry.

The Rio Grande does not seek freedom from regulation, but simple justice demands that all transportation be so regulated as to insure equality of opportunity.

Denver & Rio Grande Western Railroad

Scenic Line of the World

A major cost of railroad operation is in moving dead weight and empty cars. Now come USS High Tensile Steels with a practical solution to this problem of excessive weight. Costly dead weight is converted into increased capacity for payload at no increase in operating costs.

USS COR-TEN, one of this group of modern steels, is a low chromium copper silicon steel of high tensile strength and with an atmospheric corrosion resistance conservatively estimated at four to six times that of ordinary open-hearth steels. USS COR-TEN not only insures lighter and stronger construction, but greatly increased life as well.

USS High Tensile Steels are available in plates, shapes, bars, strips, sheets, rods, wire and wire products, pipe and tubular products. Forming and fabricating involves no radical changes in plant facilities or methods. Nor is it necessary for builders of railroad cars, traction cars, buses and trucks to experiment or tamper with the important factors of strength and safety which have always characterized American Construction.

Literature will be mailed upon request.

UNITED STATES STEEL CORPORATION SUBSIDIARIES

AMERICAN SHEET AND TIN PLATE COMPANY, *Pittsburgh*
AMERICAN STEEL & WIRE COMPANY, *Chicago*
CARNEGIE STEEL COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
COLUMBIA STEEL COMPANY, *San Francisco*
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Railroad Consolidation or Government Ownership?

W. W. Atterbury, President of the Pennsylvania Railroad, in a recent discussion of this subject stated:

"Certainly broad and bold consolidation would offer an infinitely preferable way out, and I reiterate the opinion that sooner or later we shall have to come to it if we are to avoid government ownership. . . ."

RAILROAD MERGERS

By JOHN WILL CHAPMAN, B.S., M.C.S.

Member of Investment Staff, United States Trust Company of New York; Formerly Statistical and Security Analyst for Standard Statistics Company

THIS timely new book deals with the causes, methods of effecting and results of railroad mergers. It is packed with facts of value to anyone concerned in any way with changes to be effected through the contemplated mergers of American railroads into large competing systems.

WHAT REVIEWERS SAY

"It weighs the respective merits of the more recent type of regional consolidations and the older end-to-end type, and it attempts to gather, sift, and summarize in an orderly way the more important discussions of rail merger problems."—*Barron's.*

"A close student of the railroads, Mr. Chapman has assembled in this timely book a great deal of general statistical information, conveniently arranged, on the evolution of consolidations and unifications into the giant trunk lines of today."—*New York Daily Investment News.*

"The merger problem now confronting us is discussed in some detail with the probable benefits to be derived from the various proposals advanced by the Interstate Commerce Commission, and several others."—*The American Banker.*

"The author weighs the evidence on operating advantages and disadvantages, delves into the financial aspects, and explains the effect of mergers on the market action of railroad securities."—*Wall Street Journal.*

"The whole volume, including the appendices, forms a compact and convenient reference for those seeking data upon this live and disturbing transportation and financial problem—mergers." Professor G. Lloyd Wilson, University of Pennsylvania, in the *Annals of the American Academy of Political and Social Science.*

Some of the Features

Historical Survey—advantages and disadvantages of mergers before 1920.

Merger Problems Under the Transportation Act. Maintenance of competition—Maintenance of existing routes and channels of trade—Valuation of properties—Exact provisions of the Act concerning consolidations—Relation between consolidations and unifications—Exact provisions of Act concerning unifications—Amendments in 1933.

Special Problems. Holding companies—Short lines—Minority stockholders.

Progress of Mergers after Transportation Act. The record from 1920 through 1933—Proposed particular mergers—The I. C. C. Plan—The Four-System Plan of the Eastern trunk-lines.—Current proposals.

Operating and Financial Problems of Future Mergers. Operating advantages and disadvantages—Financial aspects—Effect of mergers on the market action of railroad securities.

Conclusion. Procedural and legislative problems of future mergers—Summary of the Prince-Barriger plan for railroad mergers.

Appendices and Bibliography.

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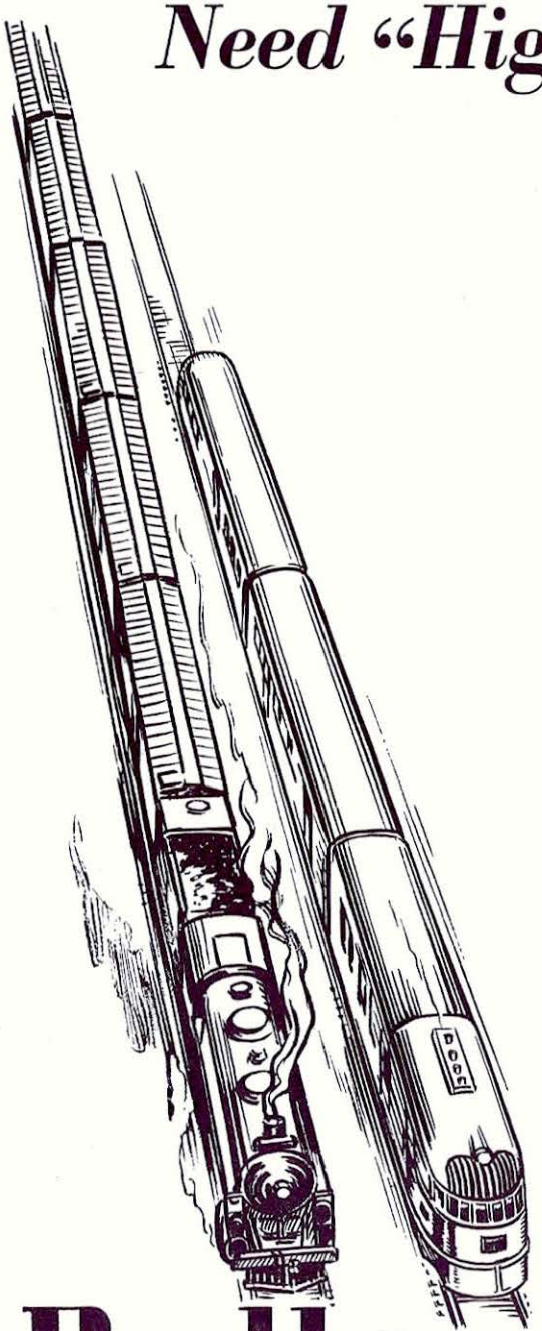

NEW power—new equipment—and new methods are adding new pages to the history of the railroad industry. The entire organization is being geared up to new speeds which will increase the efficiency of transportation and reduce the cost of operation.

Complete preparation for the new era in railroading will require new Efficiencies in the mechanical departments. It will necessitate the raising of maintenance standards and schedules of repairs.

This new role will demand the replacement of obsolete machine tools in the back shop with modern intensive production units—repair facilities which will keep pace with the new speeds out on the road and intensive operation of equipment.

Bullard engineers visualized the new conditions and now offer equipment to meet the new demands. The BULLARD HYDRO-SHIFT VERTICAL TURRET LATHES are made in five sizes 46″–56″–66″–76″– and 86″ capacities. These machines with many new features of Efficiency provide a means for reducing machining times on a large variety of railroad work with resulting increase of shop capacities and economies fully in keeping with the savings obtained from the use of new power and other equipment.

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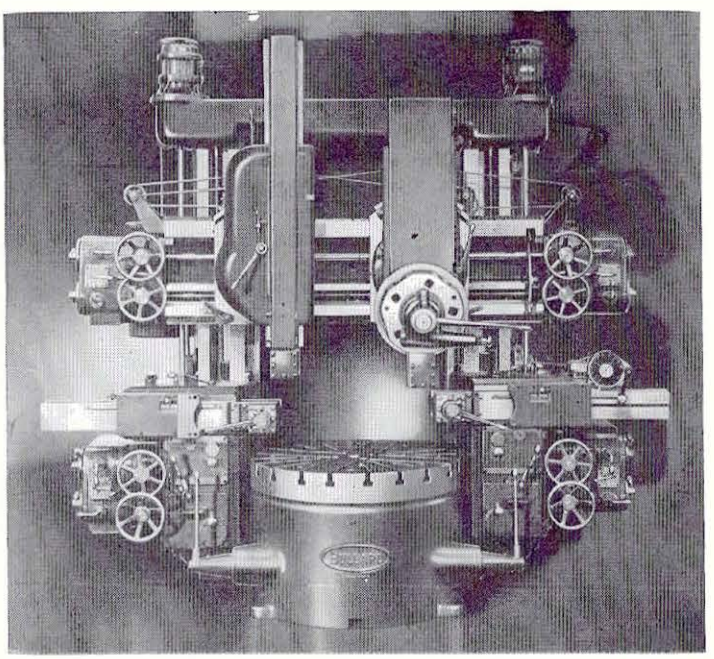

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A Personal Message

TO THE PEOPLE OF THE SOUTH

THE SEABOARD AIR LINE RAILWAY is an agency of service. It serves directly the people of the States of Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida. This southeastern territory is a land of sunshine, of abundant life, of unlimited possibilities. It is the winter playground of eastern America. No other section of the Union offers equal opportunities for development in agriculture, fruit growing, manufacturing and other essential lines of human industry.

The future of the Seaboard is linked with that of the South. It is working for the development of this territory. It is managed and operated by Southern men. It employs Southern labor. In every way practicable it seeks to support business and industry along its line. Within the past year it has reduced passenger rates about 60% and has completely air-conditioned four of its passenger trains. It has purchased the most modern freight equipment. It is now giving to the people of this section a transportation service, both passenger and freight, at least equal to that in any other section of the country.

LET US NOW END THIS DEPRESSION!

How can it be done? By restoring the activity of basic industries. By giving labor employment in the production and distribution of wealth. By restoring the purchasing power both of industry and of the masses of the people.

The railroads are among the largest purchasers of the products of basic industry; they are among the largest employers of labor. They are essential agencies in the production and distribution of wealth in that exchange of goods and services which is business.

CONSIDER THE FACTS:

In 1926 the railroads had over 1,700,000 employees and paid them about $3,000,000,000. In 1933 they had a little over 900,000 employees and paid out in wages only about $1,400,000,000. The effect upon purchasing power and business is manifest.

In 1926 the railroads spent over $550,000,000 for rail and equipment alone. In 1933 they spent only about $60,000,000. This goes far to explain the idleness of "heavy industries" and resulting unemployment.

Nearly $7,000,000,000 of railroad bonds are held by insurance companies, banks and other fiduciary institutions. About $1,500,000,000 of railroad bonds are in default. An equally large amount matures within the next five years. This not only affects present purchasing power but endangers the future security of every person who has a bank account or an insurance policy.

Transportation is a basic factor in all business. To end the depression these conditions must be remedied. How can this be done?

AGAIN CONSIDER THE FACTS:

As to rates, service, equipment, extension or abandonment of lines, number of employees, wages, finance, accounting and every detail of their business, the railroads are regulated by law. Aside from the limitations thus imposed upon their activities, the direct cost to the railroads of this regulation runs into hundreds of thousands of dollars each year.

Since 1920 the government which regulates the railroads has expended nearly $20,000,000,000 of public

SEABOARD AIR LINE RAILWAY — THROUGH THE HEART OF THE SOUTH

SEABOARD

AIR LINE RAILWAY

money in the creation of subsidies to other agencies of transportation such as highways, waterways and airways which are in competition with the railroads. These competitive agencies are not subject to any effective regulation. They make their rates and conduct their business largely as they see fit.

The result is chaos in our transportation services. Here is to be found one of the chief causes of the breakdown of our economic system.

THE REMEDY LIES in an intelligent system of public regulation applicable alike to all agencies of transportation and administered by one public body. None should be favored but the rules of the game should be the same as to all. This is fair. It is essential to economic progress.

The boats, trucks, buses and airplanes are all needed in modern transportation. So are the railroads. With a system of regulation applicable alike to all, each should be encouraged to render that service to which it is best adapted. The public would then be well served.

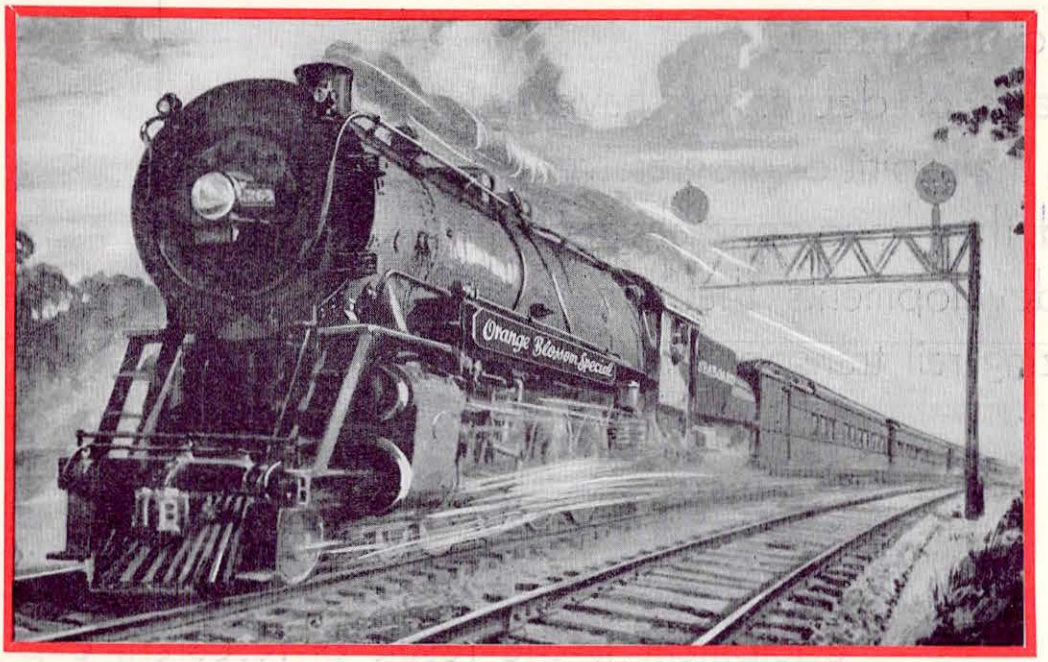
A system of transportation one-half of which is regulated and the other half not, is wasteful and ineffective. It can not continue to exist.

The SEABOARD AIR LINE RAILWAY does not ask any special favors. It does not wish to place undue or burdensome limitation upon any form of transportation. It believes that reasonable public regulation is necessary for them all.

It does ask equality of treatment for the railroads and their competitors. Give the railroads a fair chance. They will do the rest.

The SEABOARD has faith in the Country. It has faith in the South. It has shown that faith by its works. It is serving the present and building for the future.

We ask you to co-operate with us in the effort to realize that future.



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The American railways are the greatest transportation agency the world has ever known. On their financial stability depends the prosperity of the nation.

The years of depression have not broken their spirit of progressiveness. Instead, they have gone ahead with new developments that are revolutionizing rail transportation.

CRECO takes pride in the part it has played in American railway development. CRECO equipment is the result of research, experimentation and development throughout the past 46 years, a process of development that has been and is being maintained, despite the many crises which have taken place in the economic and industrial life of the country during that time.

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THE creed of every forward-looking railroad in the country is "Safety First." It is almost a religion, and properly so. It is likewise almost a religion with us who gave the Zephyr to modern transportation. In railroading, in flying, in shipping, nothing is so important as Safety.

Therefore, the Edw. G. Budd Manufacturing Company builds trains of Stainless Steel, because Stainless Steel *alone* permits reduced weight and increased speed without sacrificing strength at any point. Stainless Steel is four times stronger (elastic limit) than ordinary steel. It is not merely corrosion-resisting, but *corrosion-proof* under all operating and atmospheric conditions. This factor allows the construction of more efficient structures with thin sections, since rust and corrosion cannot attack in inaccessible places.

The Budd "Shotweld" process welds Stainless Steel into what becomes virtually one piece. No rivets to work loose and shear. No holes to cut away and weaken the metal. A railway car, by Budd, is as much one piece as though it were poured integral into a single mould!

Here, without doubt, is tomorrow's transportation today. It means the renaissance of roads long oppressed by competition. It is the dawn of a new era in railroading. And, best of all, its cost is eventually written off through savings of time and fuel.

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● *The last emergency was War! Men . . . supplies . . . can they be transported in time? . . . is railroading equal to the colossal task? And America's railroads answered with a performance from Board Chairman to Section Hand that was the wonder of the civilized world.*

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PUMPS · ELECTRICAL EQUIPMENT

nation looks to the

ROADS!

Again, the country is battling its way out of an emergency. The final push is on. The business horizon looks far brighter . . . and once more the nation's attention is centered on its railroads.

Railroads are proving their right to the business of transportation by improved service. Further, just as deeply as railroads penetrate the financial structure of the nation, so do railroad purchases form a substantial foundation for many of the heavy industries.

Railroad purchases are a vital part of a regained prosperity. "The Railroads are buying"—is a potent sign that all business is improving.

In the solution of engineering problems, new and old. In the production of DIESELS — SCALES — PUMPS — ELECTRICAL EQUIPMENT—COAL and WATER SERVICE, this company has pioneered with railroading. It occupies a leading position in the two new developments of AIR-CONDITIONING and DIESEL MOTIVE POWER.

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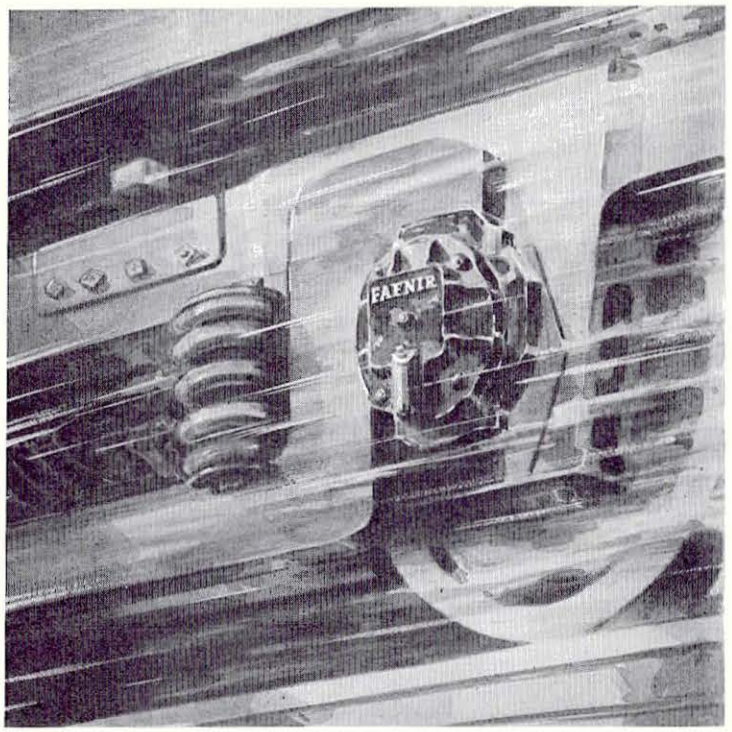

Every Car Movement Made on FAFNIRS *Will Help to* Restore Railway Earnings

IMPROVEMENTS tending to increase railway operating efficiency are a big help toward the reestablishment of railway earnings. That is why Fafnir Roller Bearings are of even more than usual interest to the railroads at this time. Many years of service on leading railroads have demonstrated that Fafnirs eliminate hot boxes—they reduce starting torque 85 to 90 per cent and reduce maintenance by two-thirds. A check of the oil level every thirty days is the only inspection necessary.

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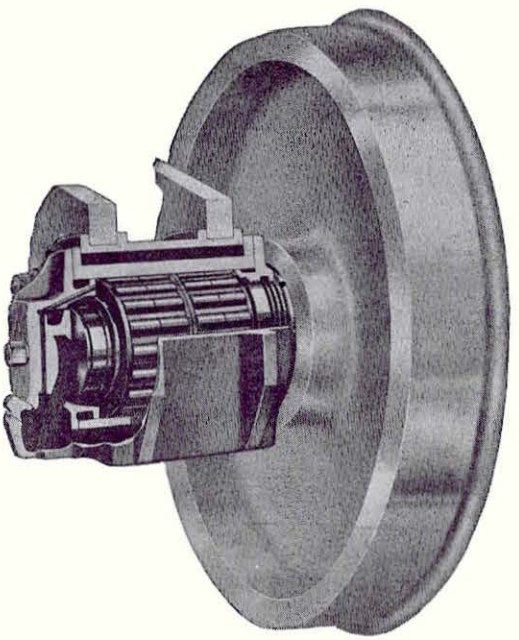
Make Fafnir Roller Journal Bearings standard equipment on all existing cars and banish friction and wear. Every car movement on Fafnir then will be made less expensively and therefore with greater profit. . . FAFNIR BEARINGS, INC., New Britain, Connecticut.



Fafnir Roller Journal Bearings have ample capacity to absorb all loads, shocks and thrust —plus positive lubrication at all speeds and under all temperatures.

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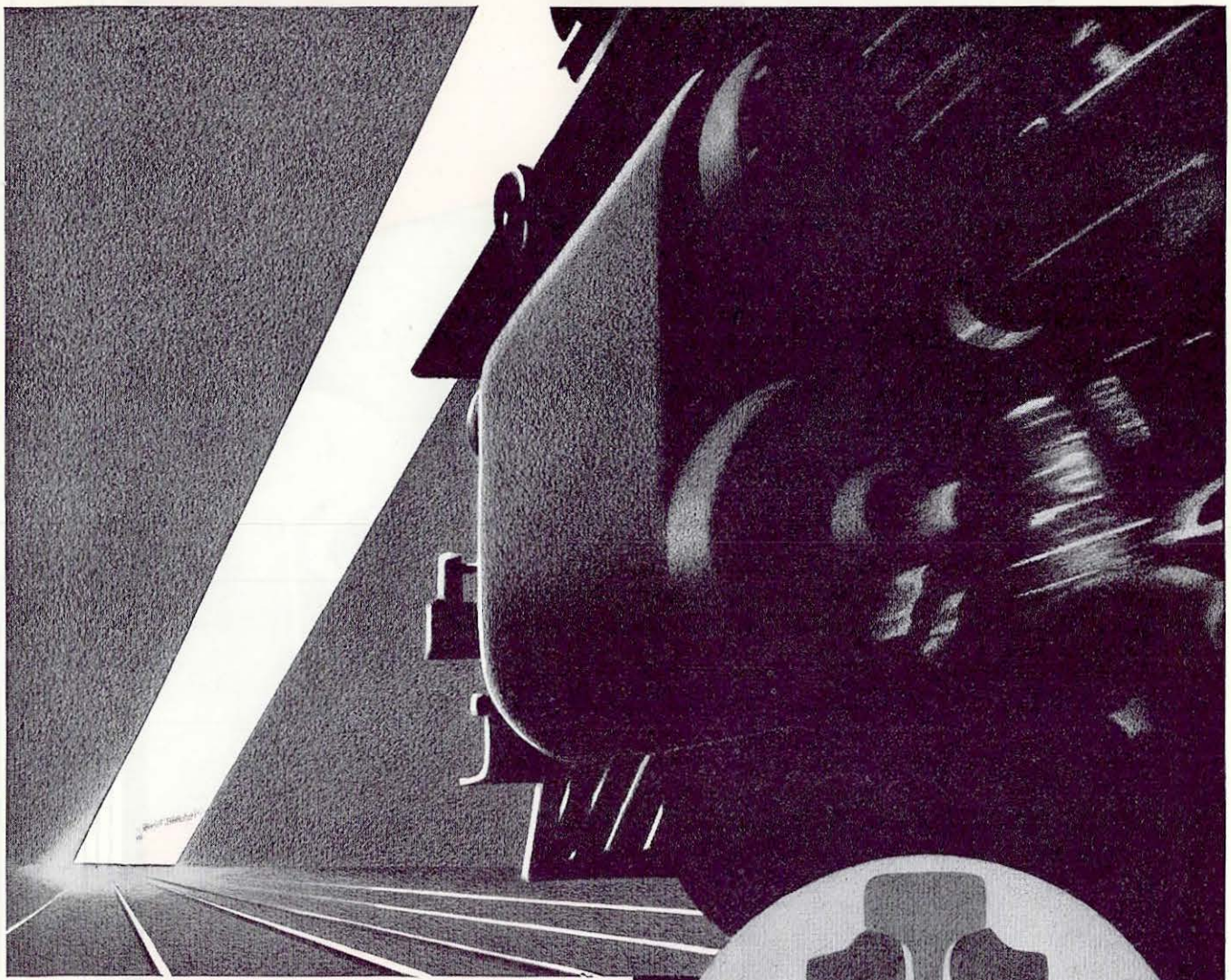

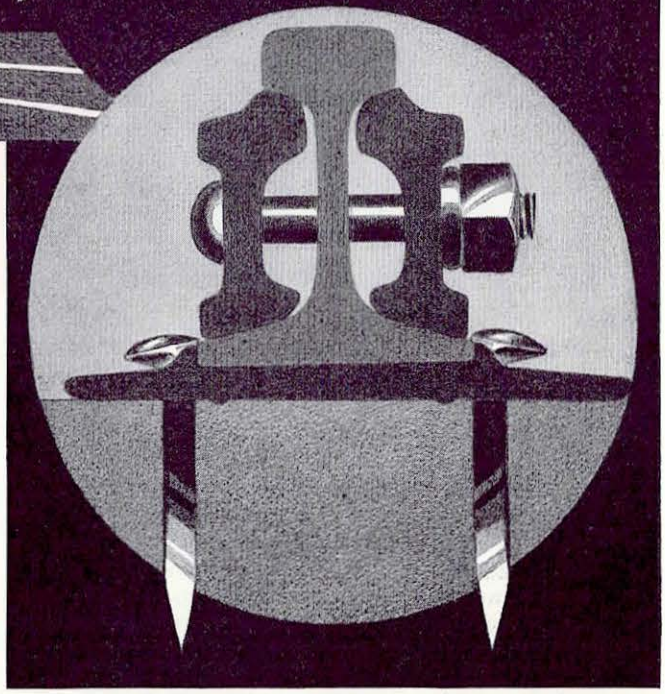

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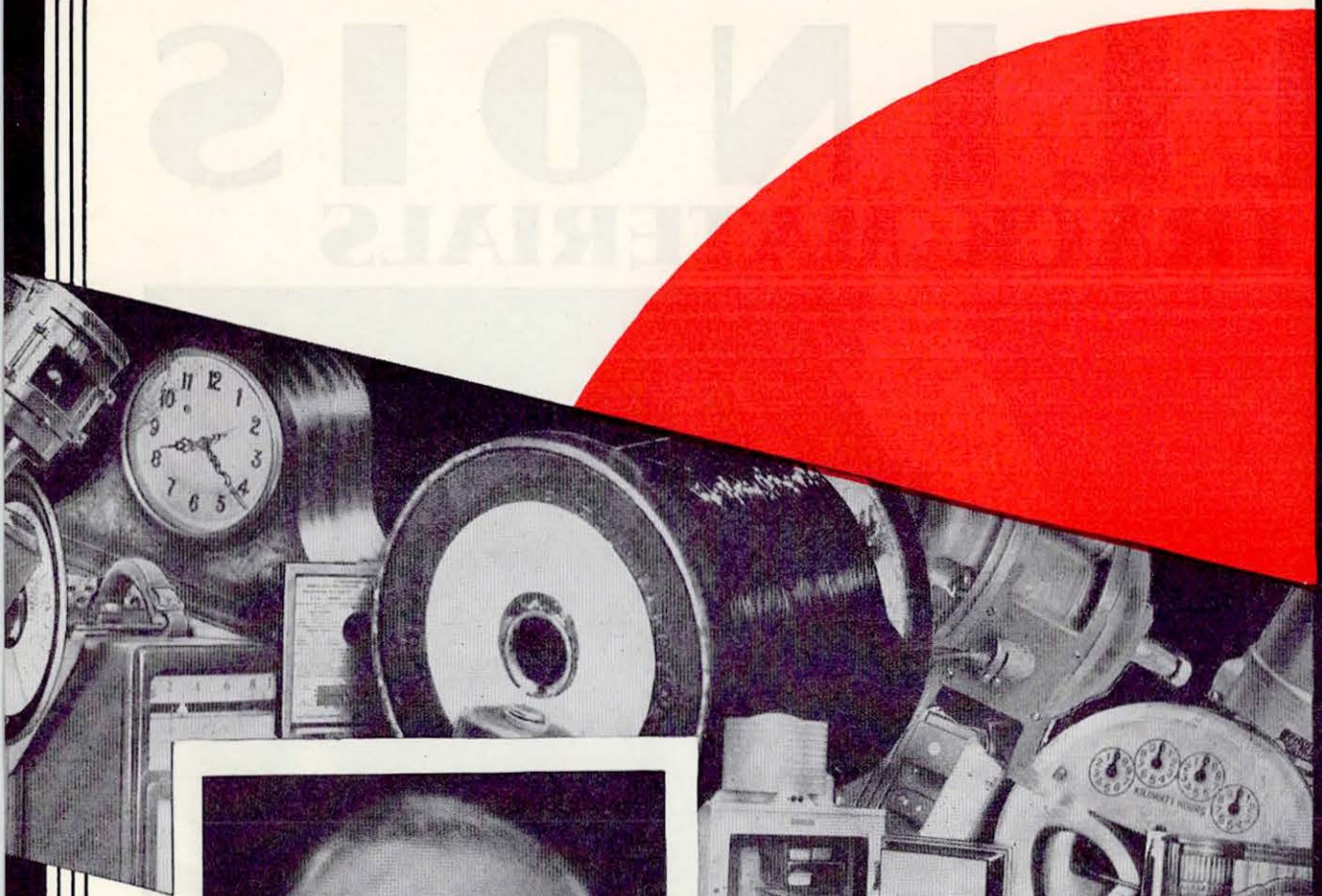

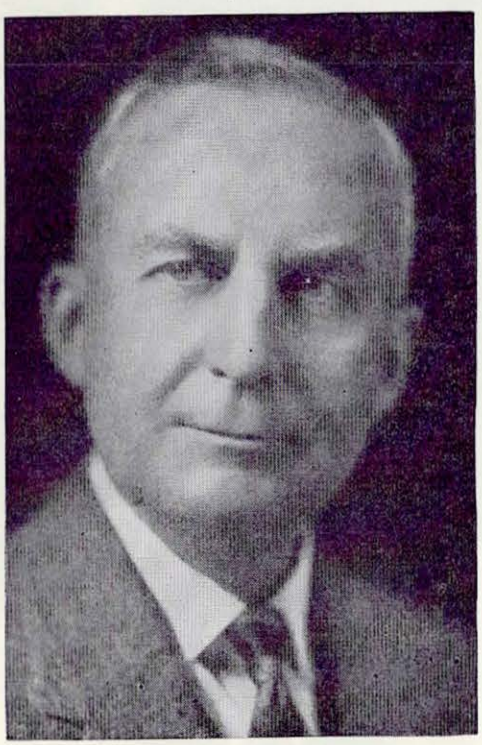

F. R. DAVIS

Fred R. Davis, supervisor of media for the General Electric Company, has an intimate knowledge of the editorial and circulation standards and policies of more business papers than probably any other man in the country. The more than $500,000 invested under his direction by GE in business papers each year is divided among many fields. In addition to his work with GE, where he has spent his entire business life, he is active as a vice-president of the Audit Bureau of Circulations and is a past president of the Technical Publicity Association.

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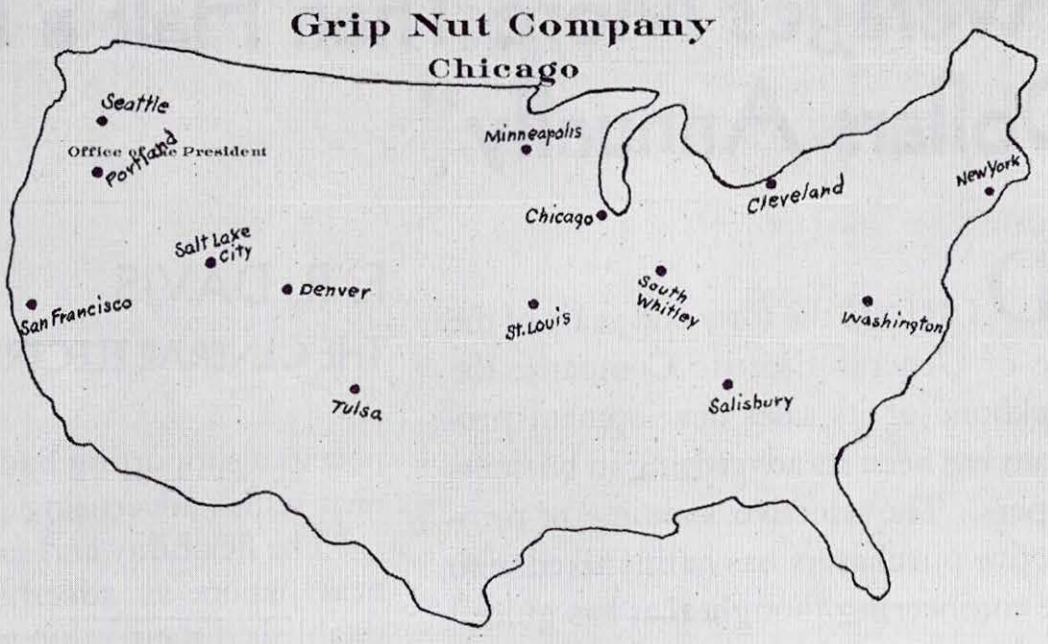
Reprinted from the November 15, 1934, issue of SALES MANAGEMENT

Until the handicaps imposed on American Railroads are removed and their buying power restored there is no way of overcoming the condition so clearly set out in the attached taken from the bulletin board of a large manufacturer of railroad supplies.

The Editor.



TO ALL EMPLOYEES.

The earnings of every employee of this company, in all plants and offices indicated on the above map, are directly dependent on the ability of the railroads to buy our products and service.

So, also is the company's ability to contribute to the prosperity of other sections of the country, through the purchase of steel, oil, kegs, precision tools, coal, and the hundreds of other items used in our manufacturing processes.

Our pay-rolls, and the business they supply to merchants in the communities in which you live, are directly dependent on restoration of railroad buying power.

As you know, the ownership of this company has done its utmost toward restoration of prosperity, by building an addition to the Chicago plant, and by making additions and improvements to all plant buildings and equipment, in order to provide employment for you while the volume of business did not warrant capacity operations.

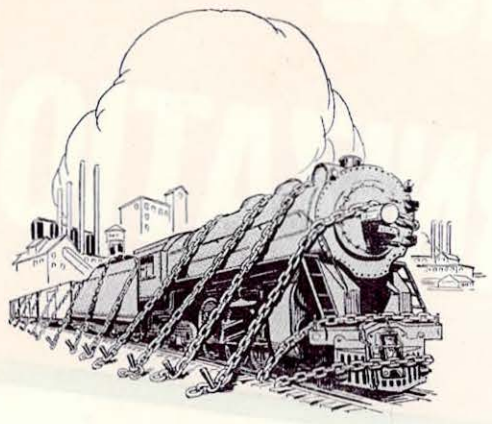
Since 86% of the railroads use Grip Nut Products - our associates in the sales department can't bring in more business to make up for loss of our customers' buying power. We wanted you to understand why we must necessarily operate on a reduced schedule until railroad prosperity is restored.

President.

J. V. Sharp

Break the Chains

that hold back RAILROADS *and* AMERICAN INDUSTRY *will move forward!*



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THE railroads are now shackled by unequal taxation, laws and regulations, while their competitors are not regulated or taxed in proportion. They are entitled to the opportunity to compete with other forms of transportation on an equal basis. This will insure increased earnings, permit the purchase of needed modern equipment, and improve service.

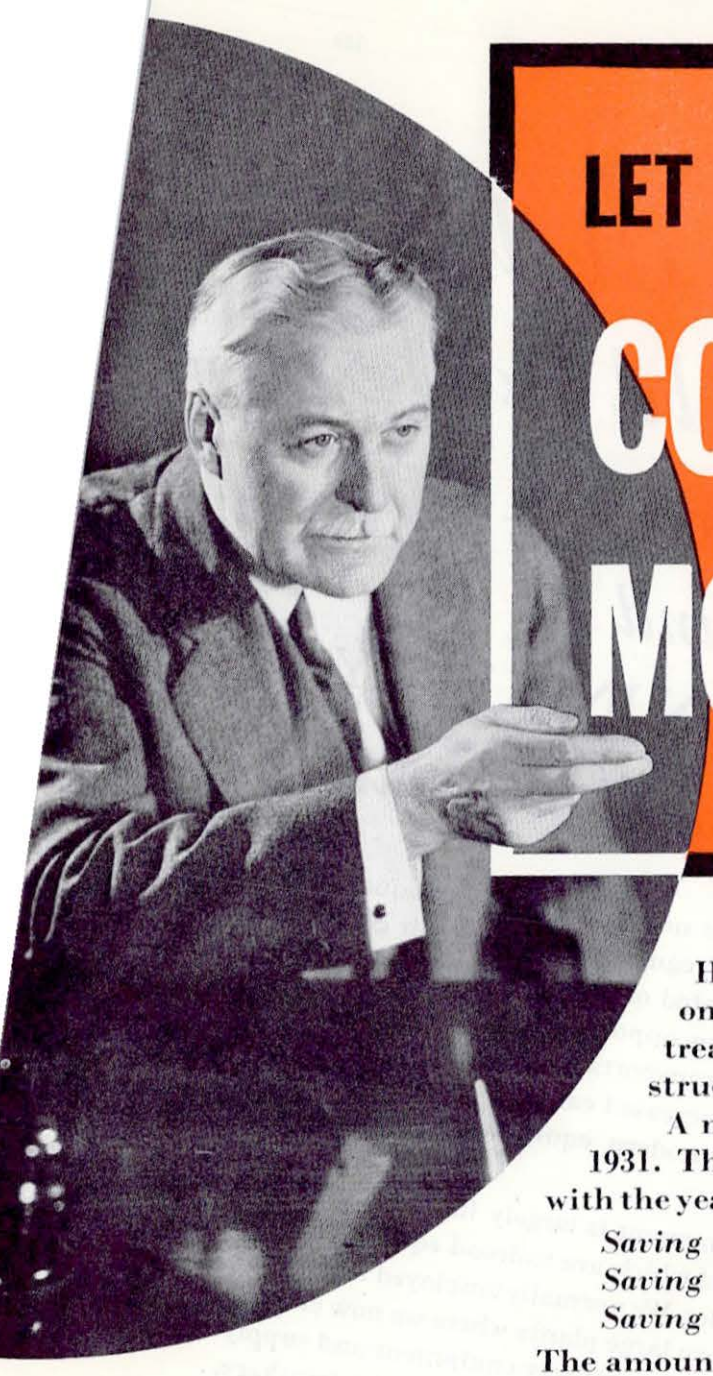
Present unemployment is largely in the "heavy industries" among which are railroad equipment and supply companies. We normally employed thousands of men in our two large plants where we now employ hundreds. The other railway equipment and supply concerns employed many more thousands of workers, who are now idle and awaiting renewed railroad buying to put them back to work.

Legislators: We appeal to you to correct the inequalities of taxation and legislation which are crippling our one indispensable form of transportation—the railroads. Increased employment and activity in the important industries supplying the railroads will then follow.

GENERAL STEEL CASTINGS CORPORATION

COMMONWEALTH PRODUCTS

EDDYSTONE, PA. GRANITE CITY, ILL.



LET THE RAILROADS CONTINUE MODERNIZATION

Here is an example of the savings made possible on one road through the modernization of water treating methods (from a report of the Reconstruction Finance Corporation).

A modern water treating system★ was installed in 1931. The figures show a comparison of the year 1933 with the year 1930—the last full year prior to modernization.

Saving in boiler material costs	*90%*
Saving in boiler washing costs	*86%*
Saving in boiler shop costs	*65%*

The amount of these savings was shown to be over 5 times the additional cost of the modernized water treatment. Large as they are, these savings do not include fuel savings, decreased out-of-service time for locomotives, etc.

Many of the railroads, however, lack the funds to continue the installation of new methods and to purchase new equipment, despite the fact that the savings effected will amply repay the costs. The ability of the railroads to continue modernization and to aid in the general recovery depends to a large extent on legislation that will allow them to increase their net operating income.

NATIONAL ALUMINATE CORPORATION
6216 West 66th Place, Chicago, Illinois

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F WATER TREATMENT

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This issue, $1.00 per copy

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 97 December 1, 1934 No. 22

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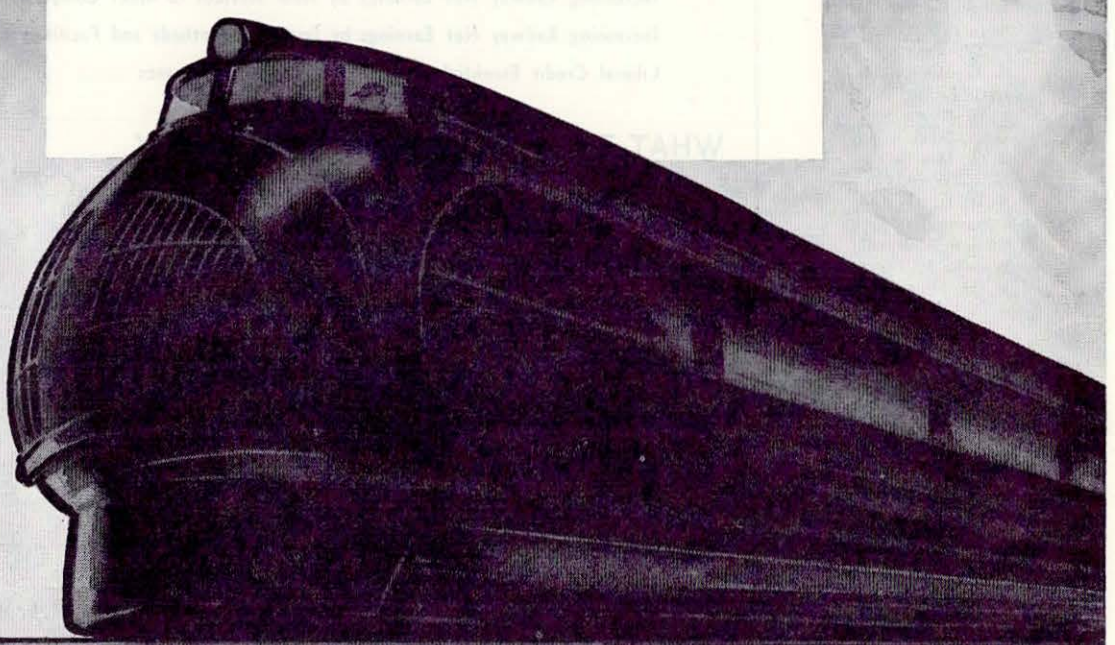
RAILROAD BUYING

IS A MAJOR FACTOR IN THE STEEL INDUSTRY

Under normal business conditions the Railroads of the Country are one of the largest buyers of steel products of every description, consuming many thousands of tons annually. » » With the present trend on the part of the railroads to render improved service involving stream-line trains, air-conditioning, higher speeds for both passenger and freight, together with increased capacity and lighter weight equipment, their consumption of both raw materials and manufactured goods, as soon as they are in position to buy, will put many thousands of men back to work. » » Over a period of many years Republic Metallurgists have developed special irons and steels for both locomotive and car service among which are Toncan Iron Boiler Tubes, Toncan Pipe, Toncan Firebox Sheets, Agathon Engine Bolt Steels, Agathon and Climax Staybolts, Agathon Nickel Forging Steel, Enduro Stainless Steel and R-D-S (Republic Double Strength Steel). » » Republic Steel Corporation regards the railroad market as one of its major outlets. » » Restoration of normal railroad buying will directly and indirectly substantially increase employment in all of our various plants.



REPUBLIC STEEL CORPORATION

GENERAL OFFICES, YOUNGSTOWN, OHIO

What this Issue of the Railway Age Shows

This issue of the *Railway Age* is probably the most extraordinary and important edition that ever was devoted by any paper solely to one vital phase of a single economic problem.

The durable goods industries are the key industries in the present economic situation in the United States. There can be no economic recovery, no restoration of general prosperity, no complete re-employment of labor, no adequate increase in the national income or in the income of most classes of the people, until business and employment in the durable goods industries are revived. **The railway industry is the largest customer of the durable goods industries. They cannot be revived without a very large and lasting increase in buying from them.**

Therefore, all the editorial contents and most of the advertising in this large issue of the *Railway Age* are devoted to showing (1) how and to what extent the great reduction of railway buying of equipment and supplies during the depression has reduced business and employment in the durable goods industries; and (2) how and to what extent increased buying by the railroads can be caused and used to help revive business and employment in the durable goods industries, and thereby to restore prosperity.

Never before in both the editorial and advertising pages of a single paper have there been presented so comprehensively the interesting and vital facts regarding the magnitude and distribution of the buying done by a great industry; of the effects produced upon other industries and their employees in widespread territories and communities by the reductions and increases in its buying; and the ways to restore its buying power as a means of helping the economic recovery of the nation.

The "Durable Goods" Industries Problem

Copies of the issue are being sent to President Roosevelt and his cabinet and advisers; to all members of Congress, members of state legislatures, and daily newspapers; to thousands of financiers and other business leaders, economists and publicists—in short, to the political, business and economic brains and leadership of the United States.

Can its contents fail to convince them regarding the necessity and right ways of solving the nation's transportation problem as an essential means of promoting recovery?

The articles in this issue demonstrate certain facts of vital importance.

(1) This depression—like most others for a century—is characterized principally by a great decline of production, and consequently of employment, in the "durable goods" industries. The present total unemployed in the United States is estimated at 10,500,000. Of these, 90 per cent are in the "durable goods" and "service" industries; about 4,500,000 in the "durable goods," and about an equal number in the "service" industries. The "service" industries are principally dependent for their business upon the durable goods industries. **Therefore, revive business and employment in the durable goods industries and you will revive business and employment in the service industries.** Revive business and employment in both, and you will cause an increase in the demand for consumers' goods which will restore employment in the production and merchandising of such goods. Economic recovery will then be complete.

Railways as Customers of "Durable Goods" Industries

(2) The railroad industry's purchases from all manufacturers declined from $1,442,434,000 in 1929 to an annual average of only $320,250,000 in 1932 and 1933. Its purchases from manufacturers of durable goods alone declined from $1,236,434,000 to only $231,750,000. This was one of the principal causes of the profound depression and unprecedented unemployment in 1932 and 1933. Because of an increase in the net operating income of the railways and government loans made to them, their purchases from all manufacturers have increased in 1934 to about $625,000,000 and their purchases from durable goods manufacturers alone to about $530,000,000. This was one of the principal causes of the improvement in general business in the first half of 1933. **But recently railway buying has been again declining.** This is one of the principal reasons why general business during the second half of 1934 has been relatively worse than during the first half.

(3) Railway buying recently has been declining because, owing to decline of traffic and advances in wages

and prices, the net operating income of the railways has been declining. In August, September and October, 1932, it was $141,855,000; in 1933, $179,179,000; in 1934, $113,698,000. **Their purchases from manufacturers have been for a long period of years determined by, and about equal in amount to, their net operating income, which is what they earn in excess of operating expenses and taxes.** In the five years ending with 1929 purchases from manufacturers were 8 per cent greater and in the four years ending with 1933, 4 per cent greater than net operating income. Average annual net operating income in the four depression years, 1930-1933, inclusive, was, however, 52 per cent less than in the five preceding years. In consequence, annual purchases from manufacturers were 55 per cent less.

Wide Distribution of Railway Buying

(4) In 1933 total railway buying was only one-third that of 1929. But even in that bad year only 19 railroads operating 65,000 miles of line, which have furnished the *Railway Age* detailed information published elsewhere in this issue, made purchases from 3,950 companies located in 750 different cities and towns in every state in the union. **No other industry's curtailment of its buying reduces business and causes unemployment in so many territories and communities. Consequently, the problem of making possible an increase in its buying is one with which public men, business men and the people in every state, congressional district, city and town should concern themselves.**

(5) Railway buying can be increased (a) by government loans; (b) by an increase in net operating income. The railways in 1934 are spending $200,000,000 loaned them by the government especially to enable them to increase their buying. The beneficial effects produced are shown in detail elsewhere in this issue. At least another $200,000,000 of loans to railways for the same purpose should be provided by Congress.

Railway Buying Depends on Net Operating Income

But what is needed to cause a large and lasting increase in railway buying is a large and lasting increase in railway net operating income.

The means, and the reasons why they are the only means, by which the required increase in net operating income can be accomplished are set forth in articles in this issue. The principal thing needed is a revival of general business and consequent increase of railway traffic. What is principally necessary to revive general business has been briefly indicated in what has been said above about revival of the durable goods industries. They have other large customers besides the railways. Most buying from them is done directly with the profits of the industries doing the buying, or with capital raised by selling securities based on actual and prospective profits.

For eighteen months government, industry and labor have been trying to speed up general business by stepping on the gas and the brakes at the same time. The brakes have proved too strong. Hence business, after speeding up for awhile, has slowed down, and recently has been running no faster than a year, or even two years, ago.

Attempts to speed it up have included actual or threatened inflation, vast expenditures for public works and relief, large payments to farmers to reduce production, and the lending of government credit to debtors and private business. They have also included advances in hourly wages, costs and prices. These have put on the brakes by reducing the demand for industrial products and curtailing profits, thus arresting revival of business and employment in the durable goods industries.

Net Operating Income and Unfair Competition

In this issue of the *Railway Age,* however, we are dealing with the means of using the railways to help promote economic recovery. They have special problems different from those of any other industry because of unprecedented changes that have occurred within the last seven years in the comparative trends of production and of railway traffic. These make it especially difficult for them to contribute toward recovery.

Formerly the increase of production and commerce and the increase of railway freight, earnings, employment and buying, virtually kept pace with each other. As recently as in 1927 total production of commodities and railroad freight business were both 6 per cent larger than they averaged in the four years 1923-1926. During the next two years production increased 12 per cent and railway freight business only 5 per cent. In the four depression years ending with 1933 production declined 36 per cent and railway freight business 44 per cent. In May, 1934, production was 16 per cent less than seven years before and railway freight business 36 per cent less. If railway freight business had declined only as much relatively as the production of commodities the railways would have had at least $1,000,000,000 annually larger gross earnings during the depression than they have had. They would have given more employment. They would have bought more from the durable goods and coal mining industries and afforded more employment in those industries.

The reasons why railway freight business first increased less, and then declined more, than production during the last seven years, is unquestionable. A rapidly increasing part of their traffic began just about seven years ago to be taken by carriers by air, waterway and highway. Even if this competition had been fair and economically sound its undermining of the earning, employing and buying power of one of our largest industries would have been temporarily harmful, because, as President Roosevelt said in a speech two years ago, it "unbalanced the system of things." But this competition has not been fair or economically sound.

Why Present Competition is Unsound

It has been unfair and economically unsound because it has been subsidized by state and federal taxpayers

through the provision of waterways for the use of which no tolls have been charged, and of highways for whose use by buses and trucks entirely inadequate rentals have been charged. We say "rentals," not "taxes." A tax is a levy upon property or income for the ordinary purposes of government—police and fire protection, schools, sanitation and the like. Buses and trucks use public property to carry on commercial business for private profit, and are not actually taxed at all unless required to pay to the public rentals exceeding the cost incurred by the public in providing and maintaining highways for them.

No industry can be expected to withstand the competition of other industries a large part of whose service costs is paid from the public treasury. There can be no fair or sound solution of the transportation problem which does not abolish subsidies.

The competition of other carriers is unfair and economically unsound also because comparable regulation is not applied to them. The notorious lack of such federal and state regulation of their rates, service and financing as is applied to the railways enables them to follow policies and practices to get business which the railways are prohibited by law, under heavy penalties, from using to protect themselves. Either federal and state regulation of other carriers should be increased or regulation of railways should be reduced or abolished.

Finally, the competition of other carriers is unfair and economically unsound because, as shown in detail elsewhere in this issue, their working conditions and wages are much less favorable to their employees, and therefore much less expensive to the other carriers, than the working conditions and wages in effect on the railways.

Imperative Need of Transportation Legislation to Aid Recovery

Excepting an increase in their traffic due to improvement in general business, **the means most needed to increase the earning and buying capacity of the railways is legislation by both Congress and the state legislatures which will establish fair and equal terms of competition in transportation.** The influence of government should also be used to equalize working conditions and wages in transportation either by increasing the labor costs of other carriers or reducing the labor costs of the railways.

Equalization of the terms of competition will enable the railways to regain much traffic that they have lost and to increase their net operating income and their buying from other industries. **It is also vitally needed to enable them to reduce rather than increase their rates.** They are at present seeking an advance of $170,000,000 annually in freight rates. The necessity for this is entirely due to losses of traffic caused by unfair federal and state policies which have enabled other carriers to operate largely on subsidies paid by the taxpayers and almost without regulation. In order to make low rates, pay high wages and earn sufficient net operating income to buy normally from other industries, it is essential that the railways have a large volume of traffic. Largely owing to government-aided diversion of traffic to other carriers the volume of their freight traffic has declined more than 40 per cent and their passenger traffic much more. Restore to them, by the adoption of fair federal and state policies, all of the traffic they have lost that they are economically best fitted to handle, and, with rates even lower than those now charged by them, their financial difficulties will soon be ended and their buying of durable goods very largely increased.

President Roosevelt on Railroad Problem

What will the railways buy? The answer is given in detail throughout the editorial and advertising pages of this issue of the *Railway Age*. They will make vast expenditures for equipment and materials to restore their properties to good physical condition. They will make large additional expenditures for new and improved equipment and facilities to enable them to reduce their operating expenses and better meet the outside competition to which they will continue to be subject. The increase in their purchases will contribute powerfully toward restoring general prosperity and general employment.

"The problem of the railroads," said President Roosevelt, in his speech at Salt Lake City on September 17, 1932, "is the problem of each and every one of us. No single economic activity enters into the life of every individual as much as do these great carriers. . . . Its owners . . . are the people throughout the country who have a savings bank account or an insurance policy, or, in some measure, an ordinary checking account. . . . Next the people who work in the railway systems, either directly on the lines or in the industries that furnish railway supplies. . . . Most numerous of all are the people who ride or ship goods over the steel highways. . . . The railroad mesh is the warp on which our economic web is largely fashioned. . . . It is our service of supply. . . . The system must become, as it should be, secure, serviceable, national."

As President Roosevelt implied, "service" should be much more broadly interpreted than satisfactorily and safely carrying passengers and freight. The railways serve when their securities afford sound investment. They serve when they give employment with good wages and working conditions. They serve when they directly give employment by buying equipment, materials and fuel. They cannot serve adequately when they cannot do all these things adequately. The railroad problem is that of enabling them to do adequately all the things they can to serve the American people.

No Recovery Without Railroad Recovery

They have carried passengers and freight well and safely before and during the depression. They have been unable during the depression otherwise to serve adequately because of lack of sufficient traffic and earnings. The value of their securities has greatly declined and many have become worthless, causing

serious losses and threatening the nation's entire financial structure. Three-quarters of a million of their employees have been thrown out of work, spreading havoc among communities throughout the country largely dependent upon their purchasing power. Railway buying from manufacturers has been reduced $1,000,000,000 annually, causing a large part of the unemployment in the durable goods industries in which unemployment has been and still is the worst. Railway buying of coal has been proportionately reduced, causing much of the unemployment in the coal mines.

There can be no recovery from the depression without constructive action to revive the earning, employing and buying capacity of the railroads.

* * *

THE WHITE HOUSE
WASHINGTON

November 15, 1933.

My dear Mr. Dunn:

Permit me to thank you for sending me a copy of the October twenty-eighth issue of the Railway Age.

I congratulate you on your achievement in going so thoroughly into the needs of the railroads for expenditures on so-called capital goods. The articles in this issue are worthy of careful study and consideration.

The Government stands ready under the provisions of the National Industrial Recovery Act to loan money to the railroads on liberal terms for railroad maintenance and equipment which will improve transportation facilities, to the extent that such loans can be reasonably secured.

Very sincerely yours,

Franklin D. Roosevelt

Samuel O. Dunn, Esq.,
Simmons-Boardman Publishing Company,
30 Church Street,
New York, N. Y.

President Roosevelt's Understanding of the Importance of the Durable Goods Industries and the Relationship of Railway Buying to Them Is Shown in This Letter Which He Wrote Last Year Commenting Upon a Special Issue of *Railway Age* Dealing With Railway Capital and Maintenance Expenditures

The Plan of This Issue—

National Recovery, the Durable Goods Industries and the Railroads . . . . . Begins on Page 668

A series of four articles, the first one of them by Federal Co-ordinator Joseph B. Eastman, showing the relationship of the durable goods industries to the present unemployment situation, and the effect of depleted railway buying on these industries. The kinds and quantities of the things the railways buy are enumerated—and communities and states in which the railways do their buying are shown.

Railway Purchases Rise or Fall with Railway Earnings . . . Begins on Page 688

This series has as its first article an exposition of the inevitable connection between the volume of railway purchases and railway net earnings. With this relationship established, other articles proceed to examine the main prospects for expansion of railway earnings as the only source from which increased purchases—and consequent revival of the durable goods industries—can come. The opportunities for improved earnings which are examined are: Regulation of and an end to the subsidies to the railways' competitors; the proposed increase in freight rates; improvement in service to aid the railways in competing for traffic; and the possibilities for further operating economies. The final article in the series deals with credit, and particularly government credit, as a factor in increased buying by the railroads.

What the Railroads Want to Buy . . . Begins on Page 716

This group of articles analyses the needs of the railways for materials, equipment and supplies, mentioning specifically the articles and facilities for which they will, in all probability, spend their money—if and when they get it to spend.

Other Factors Bearing on the Nation's Transportation Problem and Its Solution . . . . Begins on Page 734

Articles in this series outline the fundamentals of the socially important transportation labor situation—how cheap labor on the highways and waterways are taking the places of well-paid railway labor; the question of grade crossing elimination and its bearing on unemployment relief; the organization of the new Association of American Railroads and the promise it holds for a more smoothly functioning transportation machine; and the point of view of the short-line railroads, showing their importance in our national transportation system.

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Joseph B. Eastman

Railroads and the Durable Goods Industries

Normal spending by railroads would go far to break the back of the depression

By Joseph B. Eastman
Federal Co-ordinator of Transportation

I understand that this special issue of the *Railway Age* is devoted to showing how the railroads can be used to promote recovery by contributing to a revival of the durable goods industries. The subject is one of vital importance to the country, and it deserves the prominence which *Railway Age* is thus giving to it.

The present low earnings of the railroads are, of course, due to loss of traffic. The railroads have nothing to sell except service to others, and consequently they reflect general economic conditions very closely. That is the main reason why they have lost traffic, but it is by no means the only reason. A very important factor has been the recent extraordinary growth of competitive forms of transportation. The readers of the *Railway Age* understand that situation without my expounding it to them.

The railroads also constitute one of the largest industries of the country, and are normally among its largest consumers, particularly of durable goods. They suffer when general business suffers, but this statement is equally true if reversed. Normal expenditures by the railroads would go far to break the back of the depression.

The rapidly developing competition has brought with it important improvements in the art of transportation and in transportation engineering. The inroads which the competing forms of transportation are today making in railroad traffic can be ascribed in part to lower charges, but in even larger measure to such qualities as greater frequency, convenience, and adaptability of service and reduction in time of over-all transit. The newer services are being used because they have met public demands which the railroads did not meet. Clearly the conditions under which the railroads must furnish and charge for service have changed very radically.

The Co-ordinator's Survey

Because of this radical change in conditions, it seemed to me that the time was ripe for a comprehensive survey of railroad operation, equipment, service, and controlling rate policies. I have endeavored to organize and conduct such a survey, with the aid of the railroads and with the help, also, of the other transportation agencies, shippers, travelers, and those who manufacture for the railroads. The thought behind this survey is that if the railroads are to gain ground, or even to hold their own, they must get their costs down to the rock bottom consistent with good service and fair labor conditions, and that they must also prepare themselves to furnish the public with the character of service which modern competitive conditions make necessary.

Among other things, we have shown, or expect to show, that it is possible to reduce costs of operation and at the same time improve service and add to traffic, by utilizing motor trucks and buses in various situations to supplement, or as a substitute for, rail operation. We expect also to show that it will be possible to reduce costs and improve service still further by the utilization of new types of equipment which are now available or in process of development. These include air-conditioned, light-weight passenger cars; diesel-electric engines; gas or diesel motors with other means of transmission and applied to smaller units;

other types of improved motive power—steam, gas, and electric; light-weight freight cars of new design; and interchangeable containers, sectional car bodies, or demountable truck bodies which can be transported by rail on flat cars and given store-door service at origin or destination by motor trucks.

Railroads Not Obsolescent

The survey will not show that the railroads are an obsolescent form of transportation. It will indicate that the same thing has happened to them as has happened to many other industries with the progress of science and invention. There has been a comparatively sudden change in conditions which has outmoded many of their ways of doing business and accelerated obsolescence in their equipment and other property. They must be adjusted to the new conditions. One of the ways of doing this will be to join hands to a degree with their competitors and utilize their facilities. Another will be to modernize their rail equipment. Only by such means can the railroads keep step with transportation development, do their share in the creation of new traffic, and secure the share of business and revenue which is justified by their potential ability to serve.

The keen competition with other transportation agencies which has developed has had its usual result. Invention has been greatly stimulated in the railroad field. More progress has been made in the past few years in the improvement of railroad passenger service than was made in many years theretofore. I am persuaded that the country is on the verge of notable improvements in both passenger and freight service. In our survey we are doing all that we can to help the railroads in the discovery and development of the best new type of equipment.

It is also the fact that the railroads are in need of much new property of normal and well-established types. For example, they need new rail and new ties and new ballast in large quantities, and there is much track which could be relocated and reconstructed to advantage. There are many locomotives which could be replaced with equal profit. Deferred maintenance has been and is accumulating rapidly.

Large Opportunities for Expenditures

It is clear, therefore, that the railroads furnish an unusual opportunity for the useful expenditure of large sums of money, and that such expenditures would be of great benefit to the durable goods industries and to the entire country. I do not mean, of course, that expenditures should be made on the railroads merely for the purpose of helping other industries. No expenditures should be made which cannot justify themselves, ultimately at least, in dollars and cents results to the railroads, nor would it be wise to plunge into a great program for the purchase of new types of equipment until they have passed through the stage of experiment. But even within these limits there are, or soon will be, large opportunities. Moreover, there are large and immediate opportunities for the use of public funds in the elimination of grade crossings which I hope will be utilized, for such a use of public money can be justified on many grounds.

The problem, of course, is to make the necessary funds available for the railroad expenditures. It is a very difficult problem, but I do not believe that it is insoluble. In any legislative program for transportation improvement at the next session of Congress, it must and will be kept in the forefront as one of the main objectives.

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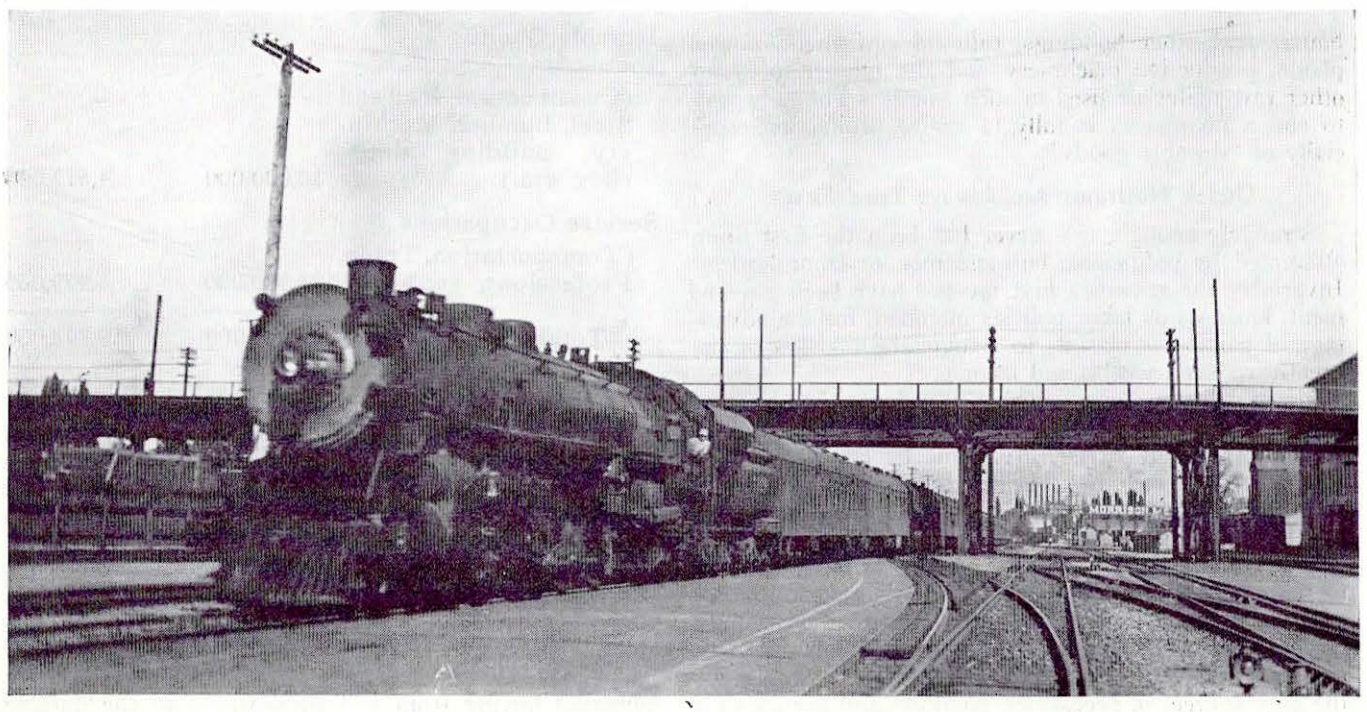
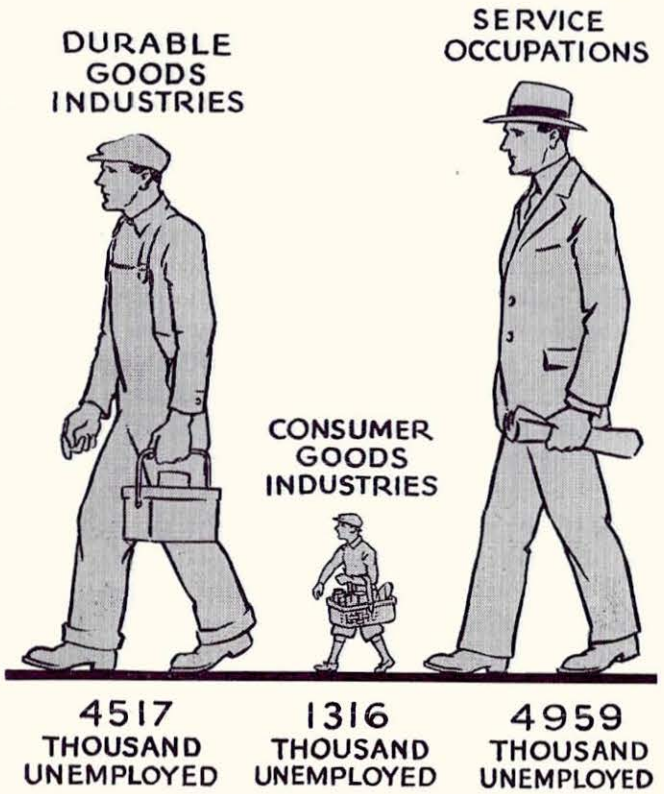


The Union Pacific's "Los Angeles Limited" Arriving at Salt Lake City, Utah

DURABLE GOODS INDUSTRIES

THIS is the worst of all depressions. But there have been long and severe depressions before, and their histories have been strikingly similar. Their paramount symptom always is a great decline of industrial production, especially production of durable things—



When the First One Goes to Work the Other Two Inevitably Follow

houses and other buildings, railroad equipment, power plants, productive machinery and the lumber, ore and other raw materials used in such things. The only way to end a depression is fully to revive production especially of "durable goods."

Quack Nostrums Are Always Tried First

Strangely enough, this never has been the first thing attempted by politicians, business men or labor leaders. Invariably the remedies first favored have been government, business or labor policies intended, for the advantage of particular classes, to change the division of the greatly reduced wealth and income.

Never in any country during any depression have so many policies of this kind been tried, some favored by business, some by agriculture, some by labor, as in the United States within the last sixteen months. This is why the recovery that began two years ago has slackened and almost stopped.

There is but one way out. All classes must unite to increase the total national wealth and income by increasing industrial production. Production and the commerce incidental to it are the only means of providing useful employment—the only real sources of income—the only sources of necessities, comforts and luxuries for all. No policies of government, business or labor having any purpose excepting increased production and commerce will promote recovery or help a vast majority of the people, especially the unemployed.

At least three fundamental mistakes have been made by industry and government in their efforts during the last year and a half to promote recovery. Industry entered NRA to reduce competition and raise prices. This was justifiable in some cases, especially for certain industries producing raw materials such as coal. As a general policy it has tended to curtail production by curtailing the demand for industrial products.

Employment and Higher Prices Are the Cart, Not the Horse, in Recovery

The government made the mistake of setting increased employment of labor and increased labor purchasing power instead of increased production as the paramount objective. To increase employment and labor purchasing power it backed demands of organized labor for general reductions of hours of work and advances in hourly wages. The labor cost of production at any given time is determined mainly by the hourly wage. Advances in hourly wages and consequent increases in costs of production tended to justify the increases in prices that industry wanted to make, anyway. Thus, government, industry and labor joined in making increases in production costs and prices which tended inevitably to reduce demand and thereby to reduce production.

	How Employment Was Divided in 1929	How Unemployment Falls in 1934
Consumers Goods Industries (Agriculture, Domestic Fuel, Manufacture of Food Articles, Clothing, etc.)	16,000,000	1,316,000
Durable Goods Industries (Construction, Iron and Steel, Lumber, Machinery, Building Materials, etc.)	10,000,000	4,517,000
Service Occupations (Transportation, Trade, Professions, etc.)	23,100,000	4,959,000
Total	49,000,000	10,792,000

What industry needed was an increased volume of business resulting in reduced unit costs and increased profits. Directly or indirectly all buying from the durable goods industries is done with the profits of other industries. Consequently, enlarged profits would have increased buying from and employment in the durable

CARRY THE KEY TO RECOVERY

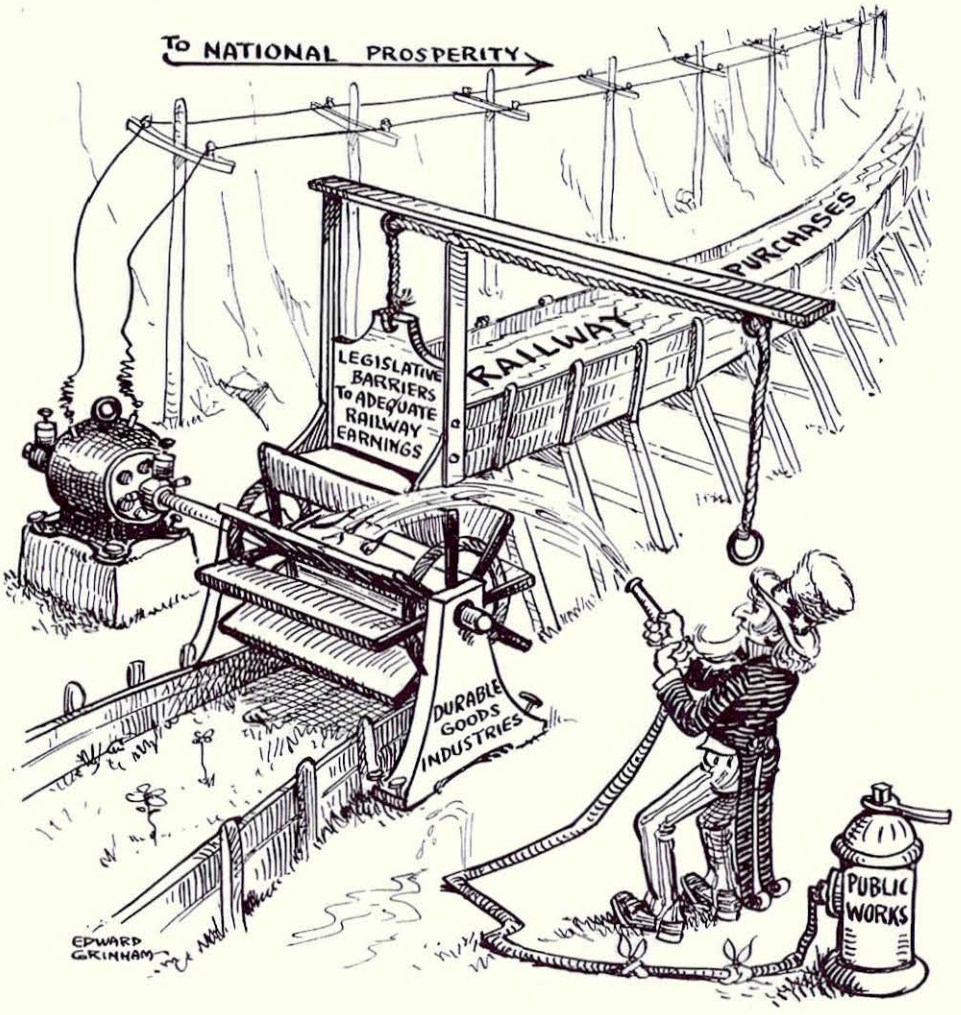
Durable Goods Industries Must Revive Before Depressed Consumer Goods Trades and Service Occupations Can Have Normal Employment — Revival in Durable Goods Industries Impossible Without Renewed Railway Buying

goods industries, which would have caused increased employment in both the service industries and the consumers' goods industries.

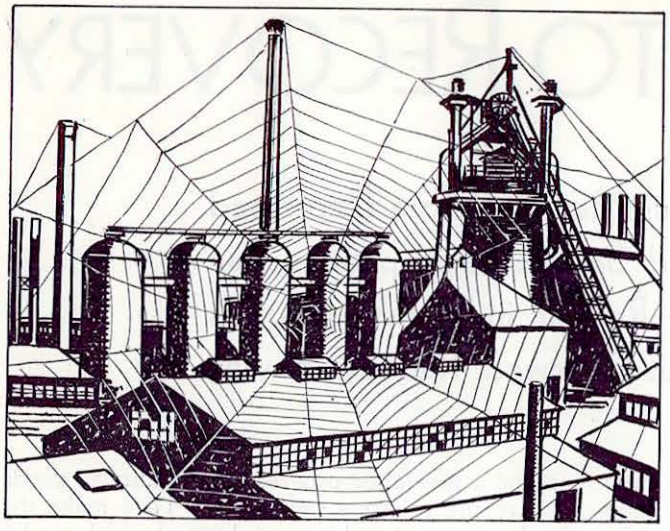
The united and mistaken efforts of government, business and labor to increase wages, prices and employment have prevented the increase of production and the consequent increased profits for business and increased employment for labor that otherwise would have occurred.

Another fact of great importance is that these policies have hindered a revival of progress. The durable goods industries are the progress industries. They make the things the development and increased use of which render it possible both to increase the volume of production and reduce the costs and prices of products. The longer revival of the durable goods industries is postponed the longer will stagnation instead of progress prevail in all business and industry.

The durable goods industries, as the name indicates,



Wouldn't Opening the Sluice-Gate Help a Little, Uncle Sam?



Codes and Shorter Hours Cannot Increase Employment Where Factories Are Closed for Lack of Orders

are those industries which produce commodities which are consumed slowly. Food products and manufactures of all kinds (except machines used to manufacture other articles) quickly reach the ultimate consumer. Buildings or steel made into rails or machine tools, however, are used for a long time before their usefulness is destroyed.

We Continue to Eat During Depression But We Postpone Painting the House

In times of economic distress people curtail their direct consumption of commodities proportionately very little. Most of them continue to eat three square meals a day, even if they are on the relief rolls, and they continue to wear out shoe leather and clothing almost as rapidly as they do in good times. The satisfaction derived from a meal or from the acquisition of a needed suit of clothes comes here and now—and whoever has cash to buy them does so, usually, whether he looks forward to prosperous times or continued depression.

It is not the same with durable goods. The machine used to grind wheat may not be the best obtainable, or the most efficient, but if it will do the work at all, the miller is inclined to let it do so as long as he is uncertain whether he is going to make enough money to pay his employees and his taxes.

Capital Investment Depends on Profits

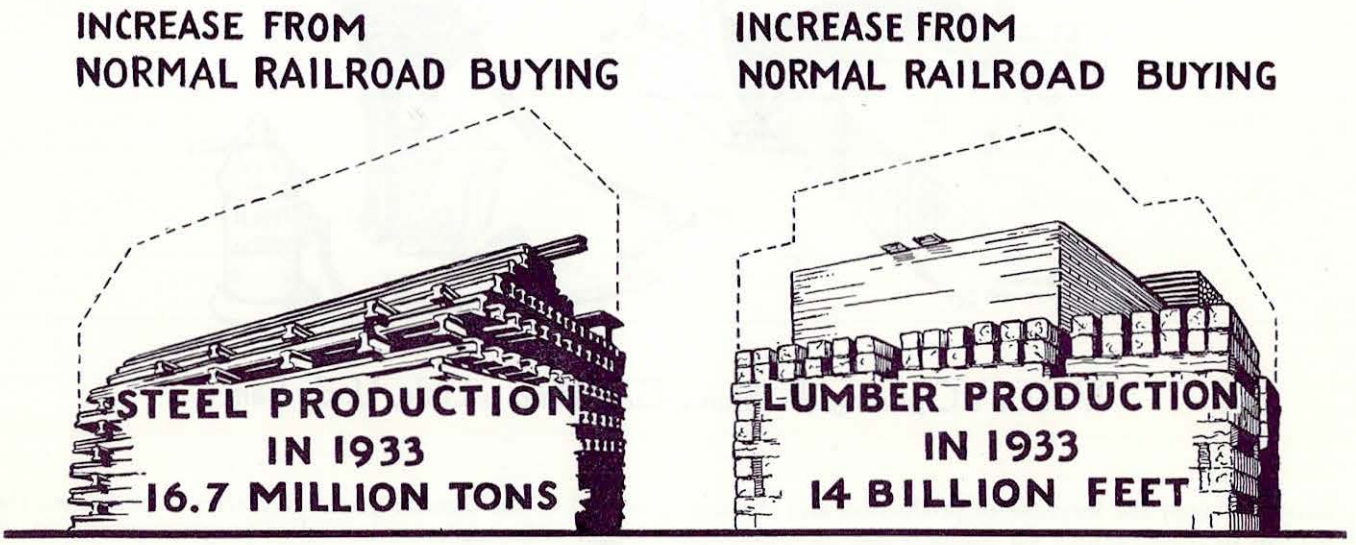
If, on the other hand, prospects for reasonable earnings were good, the risk of spending money for a new machine would be less, and the miller would be inclined to accept it. When we let the prospective buyers of durable goods either make a little money or give them reason to think that they will, the durable goods industry will begin to get orders and the depression will be over.

Our problem of national recovery, therefore, hinges entirely upon the durable goods industries. The consumers' goods industries, as measured by employment in them, are not badly off even at present. And normal employment in the durable goods industries would quickly add enough to the demand for consumers' goods to take up all the unemployment slack still remaining in the consumers' goods industries and then some.

Col. Leonard P. Ayres estimates that in August of this year the unemployed totaled 10,792,000. Of this total approximately 4,959,000 were attributable to the group providing services (transportation, retail trade, the professions, etc.) and 5,833,000 to the group producing goods. Of the total unemployed in goods producing occupations only 1,316,000 (or 23 per cent) belonged to the consumers' goods industries while 4,517,000, or 77 per cent, belonged to the durable goods industries. Certainly it requires little credulity to conclude that if the 4,517,000 could be put to work in the durable goods industries, the consumers' goods industries would need to put the 1,316,000 back to work to meet the increased demand which the durable goods' workers' new jobs would create for consumers' goods. That is to say, if we end unemployment in the durable goods industries, then the comparatively small volume of unemployment in the consumers' goods industries would quickly disappear.

Service Trades Employ Men When Industries Flourish

Yet that would still leave out of account the 4,959,000 unemployed in the service industries. It is estimated, however, that there are 891 workers employed in providing services for each 1,000 employed in the production of commodities. If we could put the 5,833,000 unemployed in the goods producing group back to work, therefore, we would make jobs for 5,591,000 in the



The Dotted Lines Show What Steel and Lumber Production Would Have Been in 1933 if Railway Buying Had Been Normal—a 36 Per Cent Increase in Steel and 21 Per Cent in Lumber

service group—or more than the present number of unemployed.

End the First Half of Unemployment and Second Half Will Take Care of Itself

As Col. Ayres points out: "Roughly one-half of the unemployment is caused by the other half of it. If we could return the producers to work the problems of the service groups would largely solve themselves. The controlling factor in unemployment among the producers is that of the workers in the durable goods industries. There is the key to our depression problem. The solution largely depends on restoring business confidence and reviving long-term financing."

"It is the industries which supply current needs—food, clothing, gasoline, paper, which are experiencing better times," says Richard S. Conway, industrial analyst, in a recent survey. "Government policies aiding such industries may be a good stop-gap from the social viewpoint. Starvation is not socially desirable or politically expedient. As an economic basis of enduring industrial recovery, such actions are futile.

"For we cannot eat ourselves out of a depression, or bring about prosperity by buying two suits or burning an additional ten gallons of gasoline in the family car. The limits to which we can expand consuming industries are not very great. We cannot double our appetite for food; the number of suits of clothes we can wear out has a definite limit; the gasoline we burn, the cigarettes we smoke obviously cannot be increased very much beyond our present use.

"Five million people in the durable goods industries still lack work and no amount of stimulation of consuming industries, no increase of purchasing power through plain or disguised governmental dole is ever going to put them back to work. Nothing but the free flow of the community's savings into the financing of buildings, machinery and similar goods can do that, and such flow is conditioned upon the fact that investors' money will be safe, and that it will be allowed to earn a reasonable return."

And just as in the durable goods industries—and nowhere else—lies the answer to the problem of national recovery, so does the revival of the durable goods industries hinge upon the restoration of normal buying of equipment and supplies by the railroads. It is not contended, of course, that the railways constitute the sole market for durable goods. They are, however, an important part of that market—so important a part, in fact, that a normal level of activity and employment in the durable goods industries is impossible of achievement without them.

How to Increase Steel and Lumber Production

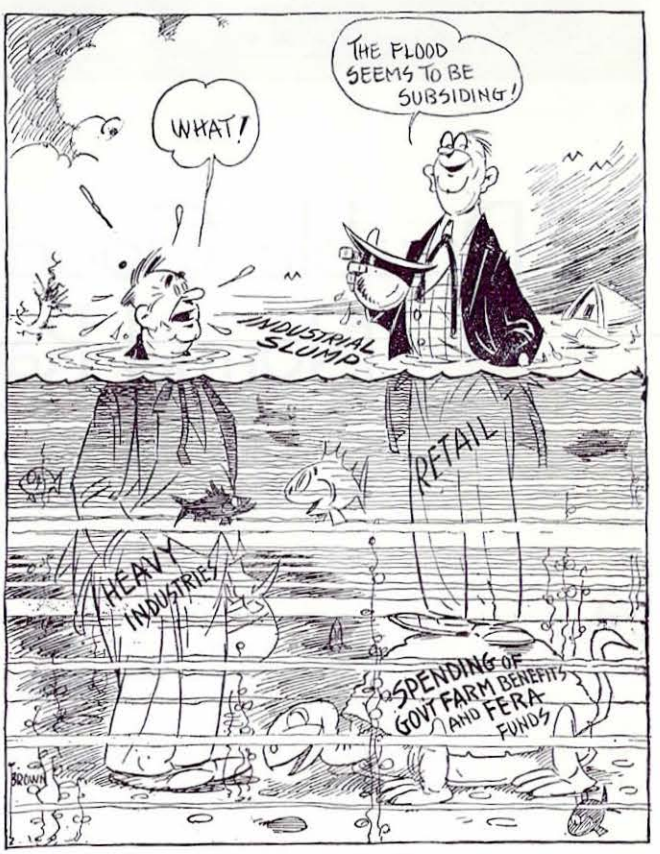
To cite but two examples—steel and lumber: The railways' purchases of finished steel in 1929 totaled 7,400,000 tons, or 18 per cent of total production. In 1933 their direct purchases amounted to only 1,300,000 tons. The total production of steel last year was 16,700,000 tons. If railway purchases had been at the 1929 level this production would have been raised to 22,800,000 tons, or by 36 per cent.

A leading authority estimates lumber production last year at 14 billion board feet. If direct railway purchases of lumber had been at the level which prevailed in 1929, lumber production would last year have totaled 17 billion feet—an increase of 21 per cent.

Railway purchases from these important branches of the durable goods industries have been sub-normal for four years. In this time a tremendous volume of accumulated demand for their products has been built up—not primarily for improvements, but in the maintenance of the existing railway plant. There are many places where the railways could profitably spend money for additions and betterments, if they had the money. But it is not necessary to take these into account in order to look forward to a tremendous volume of orders for the durable goods industries which would follow a moderate increase in railway net income. This increase would come with the adoption of a reasonable policy toward railway rates and the enactment of measures which would give the carriers a chance to compete for traffic on equal terms with other transportation agencies.

A Square Deal the Best Promoter of Business Confidence

No financial legerdemain is necessary, nor the granting of any special privileges or subsidies. Nothing but



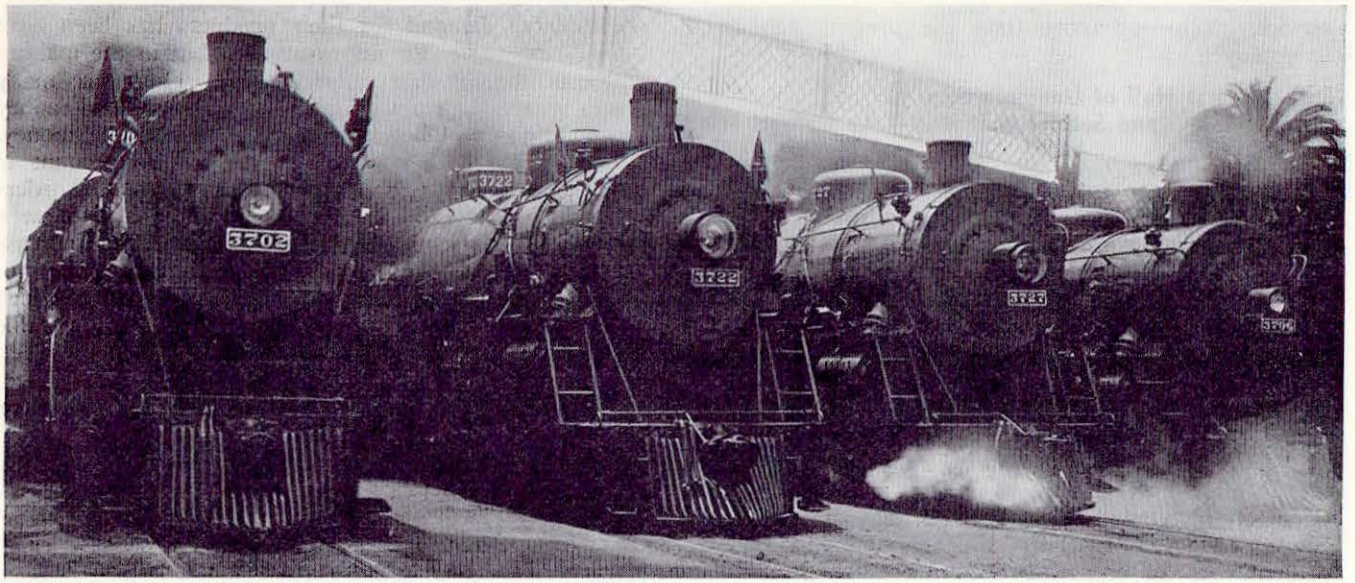
From the New York Herald Tribune

A Difference of Opinion

the application by the national and state governments of the old American principle of a fair field and no favor is needed to start the ball rolling in the capital goods industries as far as the railways can contribute to it—which is, as has been shown, a very great deal.

Other articles in this issue set forth in detail, why railway buying must inevitably follow if justice is vouchsafed the carriers; just what industries and territories will be most affected by this wave of buying; and the concrete measures recommended by impartial authorities which embody justice to the railways.

National recovery cannot come without a revival in the durable goods industries. The railways are eager to give these industries the stimulus they need. All they ask to enable them to do this is simple justice. There is no other road to recovery so quick, so certain, and so free from experimental hazards.



The Railroads Offer a Powerful Restorative of Business

Durable Goods Revival Awaits Normal Railway Buying

Four-billion-dollar market for equipment and supply manufacturers if carrier buying power is restored

A SIGNIFICANT and potent development in the present situation is the interest which people in business and public life are taking in the buying power of railroads. With continuing sluggishness in the durable goods industries, despite the money spent by government on public works and with the disappointing progress made in settling the unemployment problem, impressions widely held that the railroads have outlived their essential relation to the growth and stability of the country are swiftly yielding to the conviction that railroads, regardless of who runs them or how they are run, weigh heavily in the present problem and may yet prove the deciding factor in business restoration.

The facts about the reduction of railway buying during the depression afford the most striking and conclusive illustrations of the reason why the durable goods and service industries have been prostrated for years, and millions of wage-earners are unemployed. The railroads, collectively, are the largest consumers of manufactured materials, and the reductions in their purchases in the past five years, amounting to the staggering total of Four Billion Dollars, far exceed all the expenditures which have been made by the government for Public Works. The restoration of railway buying power would vitalize industry in all directions.

Comparative World Position of U. S. Railways

With only 6 per cent of the area and 6.5 per cent of the world's population, this country has one-third of all the railway mileage. It has ten times more mileage than the British Isles, eight times more than France, seven times more than Germany, five times more than Russia and three times more than all of Asia. In the United States are 700 railroads, 80 of which operate 1,000 miles or more of line. They own 247,000 miles of road, 427,000 miles of tracks, 51,000 steam locomotives, 46,500 passenger cars and 2,036,000 freight cars, exclusive of those owned by private car companies. When, in addition to these facts—and the further facts that the railroads of the United States still carry 75 per cent of the commerce, employ one-fourth as many wage earners as there are wage earners on farms, and paid $250,000,000 taxes in 1933, as well as interest to bondholders—it is considered that the railroads are operated, maintained and improved with the products of American mines, forests, farms and factories, the reason and justification for the renewed interest in railroads begin to appear.

One reason why the basic industries of the country have not shown the hoped-for recovery during the past two years and the reason why one of the chief divisions of the durable goods industry of the country, the railway equipment and supply industry, has, with the ex-

ception of a few months this year, been almost prostrate, and one of the reasons for reduced freight traffic, is because the largest customer of the basic industries of this country has not been buying.

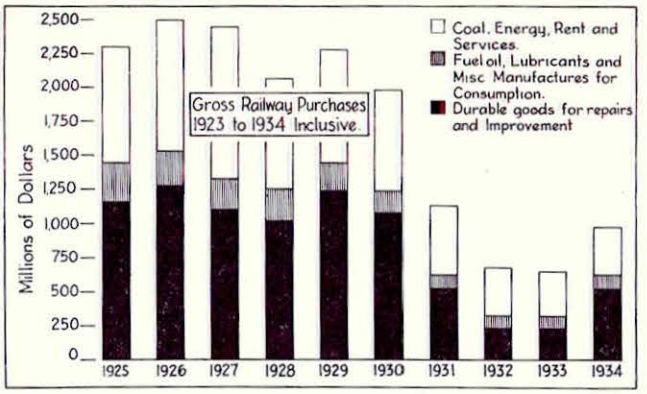
One Million a Day for Supplies

During the last 10 years, the railroads of the United States spent approximately $10,150,000,000 for materials and supplies, including $3,225,000,000 for fuel, $1,235,000,000 for forest products, $3,100,000,000 for products of iron and steel, and $2,608,000,000 for other supplies.

These figures represent only the materials purchased directly from supply firms; they do not include expenditures for new equipment purchased by the railroads from builders, and include only part of the materials used in construction programs. The latter purchases are contained in the expenditures made by the railroads for additions and betterments, commonly called capital expenditures, which amounted in the last 10 years to $5,660,000,000, including $512,000,000 for new locomotives, $1,562,000,000 for new cars and $3,593,000,000 for improvements in track and buildings.

The railroads also made large expenditures each year for heat, light, water, electric energy, rent and other services purchased from commercial firms. Prior to 1930, the latter are estimated to have amounted, in the aggregate, to $350,000,000 per year. When these are combined with the expenditures for materials and supplies bought directly, and with the additions and improvements made, after eliminating duplications and payments for railway labor, it appears that the purchases made by the railroads of the United States in the last 10 years amounted to the imposing sum of approximately $17,095,000,000.

But, that is only half of the story. Under the stimulus of better earnings, railway purchases began to increase last year, and, aided in part by loans to 18 railroads by the P.W.A. this year, expenditures for both supplies and equipment continued increasing this year until July. As a result, the purchases of materials and supplies for 1934, based upon data available at the time this was written, will amount to approximately $585,000,000, or 22 per cent more than the corresponding expenditures last year, while the combined expenditures for supplies



Total Expenditures Estimated to Have Been Made by the Railroads During Each of the Past 10 Years for Fuel, Materials and Supplies, Equipment and Heat, Light, Water, Power and Services Purchased from Commercial Firms

Table I—Purchases of Materials and Supplies

	Fuel (000)	Forest Products (000)	Iron and Steel (000)	Misc. (000)	Total (000)
1923	$617,800	$232,511	$464,955	$423,437	$1,738,703
1924	481,656	180,872	365,610	324,917	1,353,055
1925	462,620	170,305	419,254	339,863	1,392,042
1926	473,353	186,291	507,302	392,085	1,559,031
1927	438,821	175,729	432,604	348,774	1,395,928
1928	384,608	160,794	397,544	328,395	1,271,341
1929	374,048	157,551	437,840	360,096	1,329,535
5 yr.	$2,133,450	$850,670	$2,194,544	$1,769,213	$6,947,877
1930	$314,232	$134,606	$329,700	$259,968	$1,038,500
1931	224,200	75,500	220,000	175,300	695,000
1932	178,250	52,200	100,550	114,000	445,000
1933	179,150	41,185	112,685	124,730	457,750
1934†	195,000	80,000	145,000	165,000	585,000
5 yr.	$1,090,832	$383,485	$907,935	$838,998	$3,221,000

* Excluding new locomotives and cars, and supplies furnished by contractors of construction work.

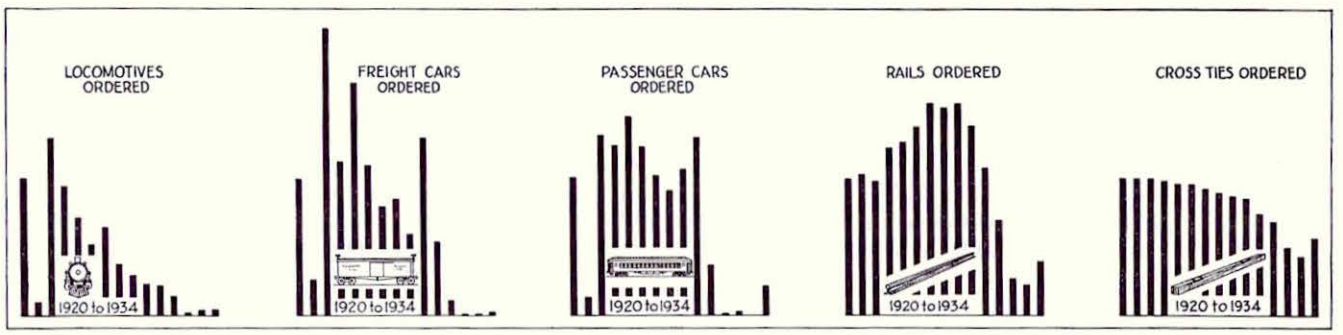
† Estimate based on reports for nine months. Subject to revision.

Table II—Gross Capital Expenditures*

	Locomotives (000)	Cars (000)	Equipment (000)	Roadway and Structures (000)	Total (000)
1923	$208,966	$472,758	$681,724	$377,425	$1,045,149
1924	102,456	391,153	493,609	381,135	874,744
1925	59,778	278,336	338,114	410,077	748,191
1926	108,263	263,659	371,922	513,164	885,086
1927	76,975	211,726	288,701	482,851	771,552
1928	51,501	172,800	224,301	452,364	676,665
1929	70,660	250,646	321,306	532,415	853,721
5 yr.	$367,177	$1,177,167	$1,544,344	$2,390,871	$3,935,215
1930	$88,494	$239,775	$328,269	$544,339	$872,608
1931	25,821	47,284	73,105	288,807	361,912
1932	17,142	19,229	36,371	130,823	167,194
1933	5,123	10,331	15,454	88,493	103,947
1934 (8 mo.)†	8,500	69,000	77,500	150,000	227,500
4 yr. 8 mo.†	$145,080	$385,619	$530,699	$1,202,462	$1,733,161

* Includes railroad labor engaged in improvement work and duplications of material in Table I.

† Subject to revision.



Orders for Locomotives, Freight and Passenger Cars, Rail and Ties Placed by the Railroads in Each of the Past 15 Years Compared with the Orders in 1920

and equipment during 1934 are expected to exceed the total of approximately $812,000,000, or half again as much as was spent in the corresponding period last year. Yet, even with this partial recovery in railway buying, the contrast between the purchases made previous to 1930 and since that time is startling.

During the five years from 1925 to 1929, inclusive, eliminating duplications and payments for railway labor, the railroads of the United States are estimated to have spent $6,195,000,000 less in the last five years for all purchases than in the five years previous and to have purchased approximately $3,860,000,000 less of materials and equipment from manufacturers and approximately $3,265,000,000 less from the durable goods industry.

What has happened to the expenditures of the railroads is further indicated by the orders placed for new equipment and rail.

From 1920 to 1924, inclusive, the orders for new locomotives, exclusive of those placed by industries or for export, averaged 1,639 per year; and from 1925 to 1929, inclusive, they averaged 981 per year, as compared with 440 in 1930, 235 in 1931, 12 in 1932, 4 in 1933 and 85 in 1934. The corresponding orders for passenger cars, averaging 1,935 per year from 1920 to 1925, inclusive, and 2,021 per year from 1925 to 1929, inclusive, amounted to only 667 in 1930, 11 in 1931, 39 in 1932, 6 in 1933 and 402 in 1934; while the corresponding orders for freight cars, which averaged 105,181 per year from 1920 to 1929, inclusive, and 78,815 per year from 1925 to 1929, inclusive, totaled only 46,360 in 1930, 10,880 in 1931, 1,968 in 1932, 1,685 in 1933 and 22,822 in 1934. Likewise, orders for new rail averaged 1,557,390 tons per year from 1920 to 1925, inclusive, and 2,064,710 tons per year from 1925 to 1929, inclusive, as compared with 1,517,000 tons in 1930, 984,900 tons in 1931, 324,326 in 1932, 324,326 in 1933 and approximately 800,000 tons in 1934. In other words, 814 new locomotives have been ordered since 1929, as compared with 4,905 ordered in the previous five years; 1,048 passenger cars, as compared with 10,104 during the previous five years; and only 80,705 freight cars, as compared with 394,269 in the five years previous to 1930,

Table III—Combined Purchases Supplies, Equipment and Services

	Durable Goods* (000)	Total from Manufacturers† (000)	Other Purchases‡ (000)	Total Purchases (000)
1925	$1,187,157	$1,422,157	$884,000	$2,306,157
1926	1,289,104	1,529,104	974,000	2,503,104
1927	1,105,377	1,330,377	1,124,000	2,454,377
1928	1,044,992	1,253,992	842,000	2,095,992
1929	1,236,434	1,442,434	842,000	2,284,434
5 years	$5,863,064	$6,978,064	$4,666,000	$11,644,064
1930	$1,091,261	$1,236,261	$745,000	$1,981,261
1931	515,912	615,912	518,000	1,133,912
1932	229,000	321,000	369,000	690,000
1933	234,500	319,500	339,000	658,500
1934	530,000	625,000	360,000	985,000
5 years	$2,600,673	$3,117,673	$2,331,000	$5,448,673
Reduction	$3,262,391	$3,860,391	$2,335,000	$6,195,391

* Materials and equipment for repairs, replacements and improvements.
† Includes ties, oils, and durable goods.
‡ Includes coal.

purchases of fuel amounted to $2,133,000,000, and, in the five years since 1929, to $1,090,000,000, a reduction of $1,043,000,000, or 51 per cent. Those for forest products bought directly by the railroads declined from $850,670,000 to $383,000,000, a reduction of $467,000,000, or 55 per cent, and those for products of iron and steel bought directly declined from $2,195,000,000 to $907,000,000, a reduction of $1,287,000,000, or 60 per cent, while total direct purchases of all materials declined from $6,947,000,000 to $3,221,000,000, a reduction of $3,726,000,000, or 58 per cent.

The proportionate reductions in capital expenditures are even more striking. Those for new locomotives declined from $367,177,000 to $145,079,000, a reduction of $222,098,000, or 60 per cent; those for new cars, from $1,544,344,000 to $530,699,000, a reduction of $1,013,645,000, or 67 per cent; and those for new buildings and tracks, from $2,390,871,000 to $1,202,462,000, a reduction of $1,088,409,000, or 46 per cent; while total expenditures for additions and betterments declined from $3,935,295,000 to $1,733,161,000, a reduction of $2,202,134,000, or 56 per cent.

Table IV—Equipment and Rail Orders

	Locomotives	Freight Cars	Passenger Cars	New Rail Laid (Long Tons)	Cross Ties Laid
1920	1,998	84,207	1,781	1,411,609	86,829,307
1921	239	23,346	246	1,464,194	86,521,556
1922	2,600	180,154	2,382	1,390,290	86,464,183
1923	1,944	94,471	2,214	1,729,696	84,434,985
1924	1,413	143,728	2,554	1,791,162	83,073,059
1925	1,055	92,816	2,191	1,950,146	82,716,674
1926	1,301	67,029	1,868	2,209,873	80,745,509
1927	734	72,006	1,612	2,124,765	78,340,182
1928	603	51,200	1,930	2,080,277	77,370,941
1929	1,212	111,218	2,303	1,958,489	74,677,482
1930	440	46,360	667	1,517,002	63,339,000
1931	235	10,880	11	984,900	51,487,000
1932	12	1,968	39	394,536	39,176,000
1933	42	1,685	6	324,326*	37,295,000
1934 (9 mo.)	85	22,822	402	570,327*	50,000,000

* Tons ordered.

Table V—Expenditures of Federal Emergency Organizations*

Organizations	Appropriations	Expenditures to June 30, 1934
Agricultural Adjustment	$552,125,230	$290,249,669
Commodity Credit Corporation	451,000,000	164,341,935
Farm Credit Administration	675,430,784	482,017,985
Federal Land Banks:		
Capital stock	125,000,000	123,019,675
Paid-in surplus	125,000,000	40,863,477
Reduction in interest rates on mortgages	22,950,000	7,029,257
Federal Emergency Relief	1,129,447,380	704,747,105
Federal Surplus Relief	51,279,500	40,053,808
Civil Works Administration	863,965,000	805,122,892
Emergency Conservation Work	713,963,945	331,940,851
Public Works:		
Loans and grants to states, municipalities, etc.	560,060,817	78,596,230
Loans to railroads	199,607,800	70,739,000
Public highways	693,044,943	267,882,018
Boulder Canyon project	62,464,961	19,445,382
River and harbor work	249,110,753	72,450,381
Tennessee Valley Authority	75,000,000	11,036,795
All other	853,796,734	133,327,844
Home Loan System:		
Home Loan Bank Stock	125,000,000	81,445,700
Home Owners' Loan Corporation	200,000,000	154,000,000
Federal Savings and Loan Assns.	50,000,000	754,800
Emergency Housing	127,564,500	369,351
Federal Housing Administration	1,000,000	.....
Subsistence Homesteads	25,000,000	2,330,181
Reconstruction Finance Corporation—direct loans and expenditures	4,163,149,973	2,412,293,003
Export-Import Banks of Washington	13,750,000	2,654,324
Federal Deposit Insurance Corp.	150,000,000	149,502,150
Administration for Industrial Recovery	9,665,000	6,632,491
Unallocated Funds	830,133,476	.....
Total	$13,098,510,795	$6,452,846,304

* National Industrial Conference Board.

Purchases from Manufacturers Four Billion Behind

When these expenditures are combined and the expenditures for commercial services are added, and after

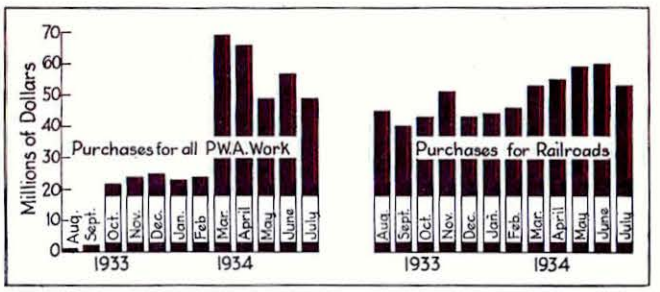
although the period from 1925 to 1929 was never regarded as a period of heavy equipment buying.

Exceed Public Works Expenditures

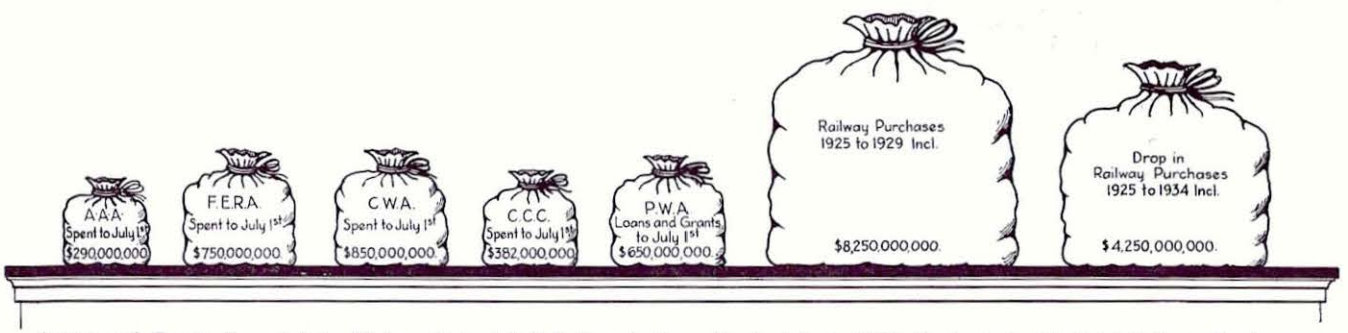
Everybody knows that the federal government has been making huge loans and outright expenditures for public works for the relief of distress and for the purpose of stimulating employment during the present emergency. These expenditures are unparalleled in the history of this country and it is commonly supposed that private expenditures are insignificant by comparison. Nevertheless, a comparison of railway purchases with the government's emergency expenditures invite attention.

The expenditures of the Federal government up to July 1, 1934, for all emergency purposes, including expenditures for administration, labor and all loans to banks and mortgage companies, amounted to the staggering total of $6,452,846,000. Of this, however, only a small part was expended directly for materials and supplies, especially from the durable goods industries. Yet the grand total is not much larger than the *reduction* which has occurred in the purchases made by the railroads of the United States for materials, supplies, equipment and commercial services during the past five years from the corresponding expenditures made in the five years prior to 1930.

The entire expenditures made by the Federal Emergency Relief Administration, the Federal Surplus Relief Corporation, the Civil Works Administration and the Civil Conservation Corps, amounting to approximately $1,880,000,000, were no greater than the total purchases which the railroads made in the single year of 1929. The expenditures of the railroads for fuel and materials and supplies alone, in 1933, amounting to $465,000,000, were almost as large as the accumulated expenditures of the government from the beginning of the public works program up to July 1, for public highways and public works of all kinds, while the purchases made by the railroads for 1934 were much larger than the entire expenditures which had been made by the government up to July 1 for the Boulder Canyon project, for river and harbor work performed under the emergency acts, for the much publicized work in the Tennessee Valley and for all other Federal public works projects, notably the Bonneville and Grand Coulee dams in Washington, the Fort Peck dam in Montana, the Casper-Alcova dam in Wyoming and the Loop River project in Nebraska.



A Comparison of the Purchases of the Railroads for Materials and Supplies with the Corresponding Purchases Made for All Projects Financed with P.W.A. Loans Month by Month from the Beginning of the Public Works to July 1, 1934



Loans and Grants Expended by Various Federal Relief Organizations Up to July 1, 1934, Contrasted with Total Railway Purchases

The public works projects, at least up to the present, were conceived primarily as a means for giving employment to labor, but, since the purchases of materials for these projects have been given prominence, a table has been prepared showing side by side and month by month the purchases for the work financed by the Public Works Administration, including the railway work so financed, and the corresponding purchases made by the railroads for fuel and materials and supplies only.

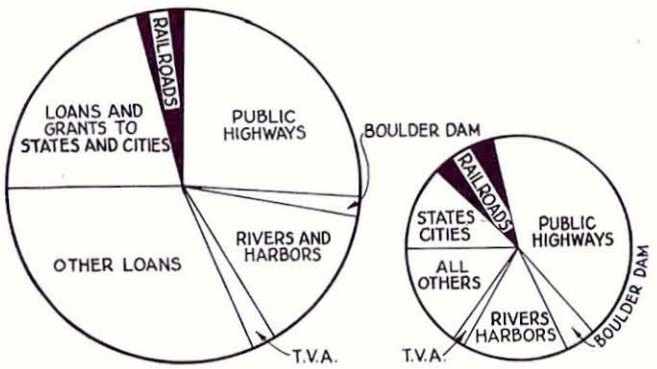
Aside from reflecting the continuity of railway buying during the year, these figures show also that even in 1933 and 1934, the purchases made by the railroads for fuel and materials and supplies were much greater in

Table VI—Expenditures for Materials and Supplies, 1933-1934

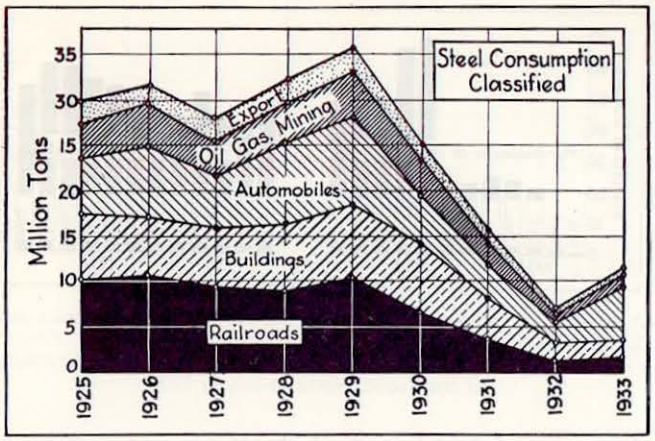
	Public Works Projects*	Railroads†
August, 1933	$202,100	$45,000,000
September	1,622,365	40,500,000
October	22,005,920	43,000,000
November	24,605,055	51,400,000
December	24,839,098	43,400,000
January, 1934	23,522,929	44,000,000
February	24,562,311	45,700,000
March	69,334,754	53,500,000
April	66,639,862	54,500,000
May	49,720,378	58,500,000
June	57,589,895	59,600,000
July	49,299,174	53,200,000
	$413,943,841	$592,300,000

* Includes material purchased by railroads with P.W.A. loans. Source—U. S. Department of Labor.

† Excludes equipment. Source—Railway Age.



Loans and Grants Authorized for All Public Works and the Funds Expended Up to July 1, 1934



The Trend of the Consumption of Finished Steel by Leading Consumers

almost every month than those made for P.W.A. projects and that the total purchases made by the railroads for materials and supplies from the beginning of the public work program were larger by $180,000,000, or 44 per cent, than those made for all P.W.A. work, although railway buying in 1933 and 1934 was subnormal and although the purchases for the P.W.A. projects included those made for railway work financed with P.W.A. loans.

Best Customers of Industry

The influence of railway purchasing and the effect of extreme contraction or expansion of it need not be left to speculation. It should be observed that railroads do not produce their own requirements. They perform repair work, recover all they can from old materials and engage in some processing, but the day when they conducted their own mining and lumbering operations is gone and the amount of strictly manufacturing operations in railroad shops is small. It is distinctive of American practice and widely held to be one of the chief reasons for their progress, that the railroads of this country depend for their requirements upon the enterprise and inventive genius of American industries.

First among those industries are the mills and factories which have grown up with the railroads and whose fortunes rise or fall with those of the railroads. These industries, known collectively as the railway supply and equipment industry, are an important division of the durable goods industry. They include the car builders with plants in 52 cities, the locomotive companies, the air-brake companies, the signal companies, etc. Other industries include the steel mills and manufacturers of machine tools and of electrical and automotive equipment. The copper, nickel, vanadium and aluminum smelters and the manufacturers of electric traction equipment watch their purchases with the greatest interest. Their purchases are also made from manufacturers of cement, of paint, of rubber, of powder and of hardware.

The railroads are customers of lumber mills and of producers of oil and coal, and contribute, through their purchases, to the stability of hundreds of wholesale houses, brokers and manufacturers' agents who maintain establishments in hundreds of cities. They employ large contractors who in turn obtain their requirements of equipment and materials from American industries; they buy light and energy from hundreds of power companies, absorb the output of many ice manufacturing and timber preservation plants and buy advertising space in newspapers and national magazines. How many industries benefit from railway purchases nobody knows, but the numbers run into the thousands.

The principal barometer of activity in the iron and steel industry is the consumption of finished steel. Distribution among consumers is reported by the Iron and Steel Institute.

Important to Steel Industry

In the eight years from 1922 to 1929, inclusive, total shipments of finished steel amounted to 255,862,000 long tons, of which the railroads were known to have taken 56,033,000 tons, or 21.6 per cent of the output. Complete data on the steel which went ultimately into railroad work would raise the figures, but at that, the railroads were by far the leading consumers of finished steel.

In 1931, total shipments were 19,000,000 tons and known shipments for railroads 2,550,000 tons, or 13.5 per cent. In 1932, the consumption of steel had fallen to 10,300,000 tons and railway consumption to 1,250,000 tons, or 12 per cent of the total; while in 1933, total consumption was 17,000,000, of which the railroads are known to have taken only 1,500,000 tons, or 9 per cent. As compared with a reduction in the consumption of finished steel from 35,634,000 tons per year from 1928 to 1930, inclusive, to 17,000,000 tons in 1933, or 50 per cent, the shipments for the leading consumer declined from 5,767,000 tons to 1,500,000 tons, or 74 per cent, reflecting an accumulated decline in three years of 11,900,000 tons, or 70 per cent of the total production of steel in 1933. The railroads have not only been the leading consumers of finished steel, but they are also the largest buyers of steel castings, the best available information showing that of an average of 5,762,240 tons produced in the five years from 1925 to 1929, inclusive, they took 2,270,420 tons, or 39 per cent.

Just how much of the production of the lumber industry is used by the railroads and in railway construction

Table VII—Distribution of Finished Steel (Thousands of Gross Tons)

	Average for 1922-1924, Inc.		Average for 1925-1927, Inc.		Average for 1928-1930, Inc.		1931		1932		1933	
	M Tons	Per Cent	M Tons	Per Cent	M Tons	Per Cent	M Tons	Per Cent	M Tons	Per Cent	M Tons	Per Cent
Railroads	7,333	26.8	7,500	22.5	5,767	16.2	2,550	13.5	1,250	12.0	1,500	9.0
Buildings	4,583	14.1	6,533	19.6	6,100	17.1	3,500	18.5	1,650	16.0	1,950	11.5
Automotive	2,933	10.3	4,567	13.7	6,167	17.3	3,050	16.0	1,750	17.0	3,250	19.0
Oil, gas, mining	2,800	9.8	2,883	8.7	3,717	10.4	2,100	11.0	900	8.5	1,000	6.0
Metal containers	1,083	3.8	1,450	4.4	1,867	5.2	1,700	9.0	1,200	11.5	2,300	13.5
Agriculture	1,040	3.7	1,450	4.4	1,933	5.4	850	4.5	350	3.5	700	4.0
Shipbuilding	....	...	....	...	....	...	....	...	100	1.0	200	1.0
Machinery	637	2.3	1,283	3.9	1,133	3.2	600	3.0	300	3.0	500	3.0
Exports	1,800	6.4	1,733	5.2	2,083	5.9	750	4.0	300	3.0	500	3.0
Highways	....	...	....	...	....	...	....	...	400	4.0	750	4.5
Miscellaneous	6,183	22.8	5,867	17.6	6,867	19.3	3,900	20.5	2,100	20.5	4,350	25.5
Total	28,392		33,266		35,634		19,000		10,300		17,000	

Source—Iron Age.

has never been conclusively determined, but the partial statistics are significant.

During the five years from 1925 to 1929 when 38 billion bd. ft. of lumber was produced, railway purchases of lumber and switch and cross ties amounted to approximately 2.9 billion bd. ft., or 12 per cent of the total, while the total consumption of forest products by the railroads and private car companies exceeded 15 per cent of the total production in that period. Since that time it has declined to 10 per cent.

Table VIII—Lumber Production and Consumption*

	Lumber Produced (Bd. Ft.)	Railway Ties and Lumber* (Bd. Ft.)
1925	38,338,000,000	5,000,000,000
1926	36,936,000,000	5,245,000,000
1927	34,532,000,000	5,261,000,000
1928	34,142,000,000	4,921,000,000
1929	36,886,000,000	4,670,000,000
1930	26,051,000,000	2,981,000,000†
1931	16,523,000,000	1,724,000,000†
1932	12,710,000,000	1,387,000,000†
1933	14,587,000,000	1,330,000,000†
1934	15,500,000,000	1,105,000,000†

* Total lumber production as reported by Bureau of Census, including lumber for export. Railway lumber estimated on the basis of railway consumption, excluding lumber, timber and piling purchased by contractors of railway construction and private car companies.

† Excluding hewn ties and lumber purchased from unorganized producers.

Comparisons between the quantities of coal produced in the United States and the quantities used by the railroads appear from the reports of the Bureau of Mines.

The railroads purchase considerable amounts of coal for the heating of buildings, but their purchases of coal for locomotives alone equalled 24 per cent of the entire mine output from 1923 to 1929 and 21.9 per cent in 1932.

Likewise, of 2,385,992,000 bbl. of fuel oil produced in the United States in the five years 1925 to 1929, inclusive, the railroads consumed 300,924,000 bbl. or 12.5 per cent; they are also estimated to have purchased 2 per cent of the entire production of electric power during the same period.

Railway Buying and Industrial Employment

The United States Department of Labor is authority for the statement that in 1929 there were 8,388,243 wage earners engaged in the manufacturing industries of the country. They do not include 1,359,000 salaried officers and employees, or employees engaged in central administration offices of the industries. Neither do they include persons gainfully occupied in trade. How many of these industrial wage earners were more or less directly engaged in producing equipment and materials for ultimate use by railroads can only be roughly estimated.

The iron and steel industries, other than manufacturers of machinery, employed 880,882 wage earners, of which 100,000 are estimated to have been engaged in manufacturing materials for ultimate use by railroads. There were 1,091,269 wage earners engaged in the production of machinery, of which 75,000 are estimated to have been producing railway equipment. There were 314,741 engaged in producing non-ferrous material, of which 10,000 are estimated to have been produced for railroads, and there were 876,383 in the forest products industries, of which 150,000 are estimated to have been producing for railroads. This does not include approximately 100,000 workers engaged at least on a part-time basis in hewing ties. Of the total number of wage earners industrially employed, it is estimated that 450,000 were engaged on railway production, exclusive of those engaged in producing materials and machinery required by the manufacturers who directly supply the railroads.

The U. S. Department of Labor is also authority for the statement that in 1929 there were 788,357 wage earners employed in mines, exclusive of 53,395 proprietors and salaried employees, and also exclusive of all wage earners in the mining trade.

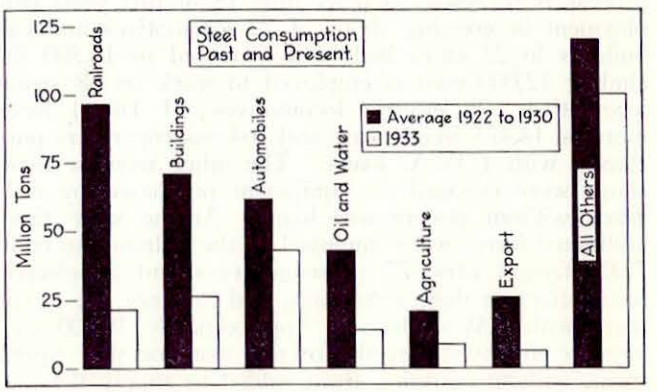
There were 600,000 wage earners employed in coal mining in 1929, of which 115,000 are estimated to have owed their employment directly to railway consumption. The requirements of the railroads are also estimated to have kept 5,000 employed in iron mines and 4,000 employed in stone quarries, a total of 126,500 miners more or less directly supported by railway purchases. It is also estimated that at least 25,000 of the 150,000 wage earners engaged in producing scrap iron for steel mills in 1929 owe their employment to the railway trade. When to these wage earners are added the salaried employees in the industries who are more or less directly benefited by the railway buying, and the wage earners who are indirectly engaged in producing the railways requirements, and when to these are added the wage earners employed by contractors of railway work and those commercially engaged as a result of railway expenditures for materials, equipment and improvement work, and all others engaged indirectly because of these purchases, it is estimated that no less than a million people gainfully occupied in 1929 owed their employment to the buying power of this basic industry, while an equal number owed their livelihood in part to that buying.

Table IX—Consumption of Coal by Railroads

	Produced (Mill. Net Tons)	Consumed for Loco. (Mill. Net Tons)	Per Cent
1889	95.8	26.5	27.7
1899	190.3	53.4	28.1
1909	370.3	106.0	28.6
1919	481.7	124.7	25.9
1923	517.0	137.0	26.4
1929	519.6	118.6	22.8
1930	455.0	98.4	21.6
1931	371.9	81.7	22.0
1932	302.8	66.4	21.9

Declines Hit Equipment Industries

The purchases of railroads are so large that when they are drastically curtailed for a protracted period not only is the strength and usefulness of the transportation service weakened, but the disastrous effects are felt



The Railroads Consumed More Steel in the Past 10 Years Than Any Other Leading Consumer and the Reduction in Their Consumption Has Been Proportionately Larger Than Other Consumers in Recent Years, a Fact Which Explains the Low Rate of Present Steel Manufacturing Operations

throughout industry, especially when depressed conditions in related fields of buying provide nothing to fall back on. The producer of railway equipment and supplies first draws on its reserves to keep its specialized organization intact until business revives. Employment retreats to a part-time basis. Then comes the lay-off. The effect spreads to other industries, reaches the mills, passes to the mines, causes distress in unexpected places, further reduces the commerce which creates the traffic and provides the funds for further railway purchases—that is what has happened with the reductions in railway buying.

Figures compiled recently by the Railway Business Association reveal the experience of the railway equipment and supply industry—the worst sufferer of the depression. The analysis embraces 254 companies operating probably twice as many plants. The steel mills are not included. These companies, with an investment of $881,478,000 devoted to railway manufacturing, reported that their sales to railroads declined from $820,572,000 in 1929 to $123,071,000 in 1933, or 85 per cent; the number of wage earners engaged in manufacturing railway supplies decreased from 131,017 to 45,264, or 66 per cent; and the corresponding pay-roll declined from $195,768,000 to $45,530,000 or 76 per cent, despite efforts to keep the organizations intact and distribute the losses as widely as possible. Since these manufacturers depend upon other manufacturers, that condition is reflected elsewhere in the durable goods industry as a result of the reduction in railway buying.

Table X—Industrial Employment, 1929

	Plants	Wage Earners*	For Railroads (Estimated)
Food and kindred products	56,320	753,247	5,000
Textiles and their products	27,404	1,707,798	5,000
Forest products	26,912	876,383	125,000
Paper and allied products	3,126	233,393	2,000
Printing, publishing, etc.	27,522	357,988	5,000
Chemicals, paints, etc.	8,278	280,868	5,000
Products of petroleum	1,497	147,216	10,000
Rubber products	525	149,148	2,000
Leather and products	4,285	318,472	2,500
Stone, clay and misc.	8,515	328,417	3,000
Iron and steel, ex. machinery	6,640	880,882	100,000
Non-ferrous	7,522	314,741	5,000
Machinery, ex. transportation	12,955	1,091,269	75,000
Transportation	2,550	583,355	60,000
Railroad shops	2,297	398,156	368,681
Miscellaneous	14,612	417,410	15,000
Total	210,959	8,838,743	788,181

* Excludes salaried employees and wage earner in central administrative offices.

With substantial increases in railway purchases, the process is reversed. Up to June 15 of this year, employment in erecting shops of 22 locomotives and car builders in 23 cities had been increased to 16,500 including 12,000 men re-employed to work on 68 steam locomotives, 76 electric locomotives, 21 Diesel locomotives, 14,475 freight cars and 264 passenger cars purchased with P.W.A. loans. The other men in these shops were engaged on equipment purchased by railroads without government loans. At the same time, additional forces were employed by the railroads to build 7,900 freight cars, 75 passenger cars and 25 electric locomotives in their own shops and to carry out repair work with P.W.A. loans. Approximately 38,000 men were re-employed directly for this work on new equipment, without counting those added to supply the materials ordered by the railroads and builders to complete the program. The Public Works Administration estimates that at least 100,000 wage earners owe their employment to the railway work financed with P.W.A. money and it should be emphasized that railway purchases have been financed only to a small degree with government loans.

What would happen if the railroads could promptly undertake to restore the service life of that portion of the plant that is not obsolete and to replace and rebuild along thoroughly modern lines that portion of the plant which is still serviceable but outworn and otherwise obsolete? It has already been stated that in the five years since 1929, the railroads purchased almost four billion dollars less from manufacturers than in the five years previous and that does not include coal. Making general allowances for the increased economies in railway operation and the elimination of further requirements for unprofitable routes, it is easy to visualize a program requiring three billion dollars of materials and equipment for repair and improvement work, which, if launched during the present emergency, would, like a huge stone dropped into a stagnant pool, vitalize industry in all directions. Railway repair shops and the railway supply and equipment industry would lose the sepulchural aspect most of them have held for years and hum as they have not since 1929. Steel mills now operating at 25 per cent of their capacity would fall behind in filling orders. Coal, ore and lumber production would rise to meet the requirements of manufacturers. Industrial communities would feel the stir, and the effect on railway income can be imagined when it is considered that it takes six tons of raw material to produce one ton of finished steel and that the railroads are estimated to pay approximately $75,000,000 per year annually for the freight on the material and equipment they buy.

Here, then, is an approach to the restoration of employment in the durable goods industry that offers an unusually strong appeal, not only because it can be accomplished without the delay and expense inherent in a less compact and less efficiently organized field of action and promises immediate results along a wide front, but also because it provides for the consumption of material as rapidly as produced and is directed at the same time to meet the requirements of an indispensable service which is now self-liquidating, but which, unless restored to full usefulness, may itself become a charge upon the country. The possibilities in restoring the buying power of industries' best customer at this time can hardly be overestimated.

* * *

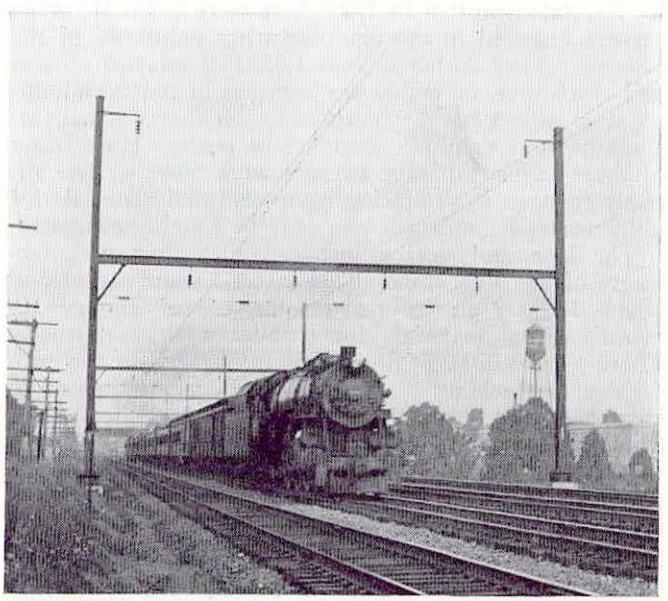
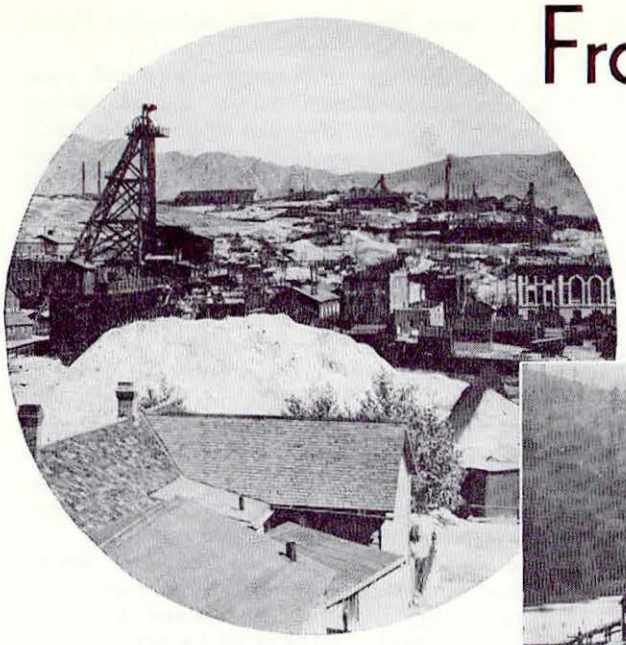


Photo by Paul T. Warner

A Baltimore & Ohio Train on the Reading, near Langhorne, Pa.

From Butte to Bogalusa

Challenging facts about the importance of railroads found in the wide diversity and distribution of their buying



The Effects of Railway Buying Are Felt from Butte to Bogalusa

WHILE most people know a great deal about railroads, what a great many people, including even railway men, do not know is that one does not have to go to a railroad town to see what happens when railroads are forced to reduce expenses. Entirely apart from the effect of reductions in railway employment and interest payments upon community life is the fact that when the railroads apply the ax to their purchases, the effects, directly and indirectly, are felt wherever people work—from the mines of Butte and the woods of Washington to the lumber camps of Bogalusa and the mills and coal tipples near Birmingham; and the reason is not only because their purchases are so large, but also because they are so diversified and so widely distributed.

There are no manufacturers or large consumers, with the possible exception of the Federal government, with so great a diversity of requirements, and no large consumer comes within hailing distance of the railroads in these times in the number of supply sources which benefit or suffer in direct proportion to these requirements. These facts are not more widely appreciated because they have been so little presented.

The coal miner of Pennsylvania is indifferent to the railroads west of the Mississippi and the logger of fir in Oregon cares little what happens to railroads in the East. Yet, when the western roads are unable to purchase locomotives, the equipment builders in Pennsylvania require that much less coal for their power plants, and, when earnings forbid a large construction contract calling for structural timber and piling on the New York Central, sawmills slow down on the Pacific Coast.

When the Pennsylvania first applied to the Reconstruction Finance Corporation for a loan of $77,000,000 for the electrification of its Philadelphia-Washington line, residents of Arizona were not the only people who were unconcerned. The authorities in Washington, D. C., were at first only mildly interested. It smacked too much of a purely local enterprise—until it was shown that the project would involve the ordering, delivering and erecting in a little more than two years on a 230-mile front of approximately 68,000 tons of steel, 38,000,000 lb. of copper, 176 new locomotives, alterations on 36 existing locomotives, and 114 new passenger cars; that the project would require the construction of 30 new electrical substations, the placing of 8,000 steel poles on concrete foundations and the stringing of approximately 6,500 miles of wire and the electrification of 1,082 miles of track; that the project would require the direct or indirect employment of approximately 18,000 persons by the railroad and industries and the payment of wages for 50,000,000 man-hours of labor in 38 states, including areas as remote as Arizona and Washington; and that the work could be started within two weeks after the loans were authorized—all of which expectations were fulfilled.

A freight car has no power to stir men's blood and a steam locomotive is just another iron horse, but when a railroad recently undertook to build 500 refrigerator cars, orders were placed with 46 different manufacturers. The material for a steam locomotive comes from 32 states. When streamlined trains were recently ordered by the Union Pacific for use in the far west, they not only constituted a new development in transportation, but their construction put 600 men to work at Pullman, Ill., increased pay-rolls at Detroit, started looms in North Carolina, brought cheer to Alco, Tenn., and called men back to work in the mines of Bauxite, Ark.

Purchases Widely Scattered

In spite of impressions held in many places and utterances made from time to time in legislative halls, the railroads do not confine their purchases to a relatively small number of producers. The far-flung character of railway operations and the responsibility of railroads for continuity and dependability of transportation service demand a multiplicity of sources even for identical materials, especially for materials involved in the operation and safety of trains, with the result that every state in the Union shares directly in the wide range of purchases that the railways make. Not only does this appear when the purchases of all railroads are considered, but it is par-

ticularly to be emphasized that individual roads, even though small and inconspicuous, invariably purchase heavily beyond the boundaries of the state within which they operate.

The Clinchfield is a road of 300 miles not widely known beyond the borders of Virginia and the other states through which it runs. Yet, even in 1933, when its purchases were less than half of what they were in 1929, this road drew on cities and towns in 25 states.

All efforts to comprehend the importance of the railroads to the welfare of the country are inadequate that overlook the wide diversity and wide distribution of railway purchases. Not only do their requirements include all classes of material but they are obtained from hundreds of companies in hundreds of towns and cities in every state of the Union,—from the copper mines in Butte and the woods of Washington to the lumber camps of Bogalusa and the coal tipples near Birmingham. When the enervating effect of subnormal business is everywhere evident, it is not surprising that people who know what the buying power of the railroads means search for the means of restoring it. It is a recovery program which the North and the South and the East and the West can meet with a real community of interest.

The Lake Superior & Ishpeming is a railroad little discussed beyond its area in the northern peninsula of Michigan. Yet in 1933, when expenditures for supplies were less than 50 per cent of those in 1929, the L. S. & I. obtained supplies and equipment from 20 states, including those as remote as Massachusetts, Connecticut, Maryland, Georgia, Kentucky, Virginia, Ohio, Nebraska and Texas.

The Nevada Northern is less than 200 miles long and operates exclusively in Nevada. Yet in 1933, when its purchases were only one-fifth of the volume in 1929, this road obtained supplies from 11 different states, including the remote states of Ohio, Missouri, New Jersey and Pennsylvania.

The Fort Smith & Western boasts of no large acquaintance outside of Arkansas and Oklahoma where its 250 miles of line are located; but in 1933, when this road's purchases were only 38 per cent of the volume in 1929, it obtained supplies directly from 25 states, including the distant states of Alabama, Delaware, Massachusetts, North Carolina, Rhode Island and Tennessee.

The Richmond, Fredericksburg & Potomac operates only between Richmond, Va., and Washington, D. C.; yet in 1933, when this road expended only $1,163,000 for materials and supplies, as compared with $2,869,000 in 1929, its requirements were directly supplied from 16 states, including Connecticut, Massachusetts, Indiana, Illinois, Iowa, Missouri, Ohio and Wisconsin.

The operations of the Louisiana & Arkansas, a 650-mile line, are restricted to portions of Arkansas, Texas and Louisiana; yet in 1933, when its purchases amounted to $463,000, as compared with $1,377,000 in 1929, this road placed substantial orders with 111 companies located in 19 states, including those as far removed as Minnesota, Wisconsin, New York, Massachusetts, Pennsylvania, Virginia and Tennessee.

The Chicago & Western Indiana is a terminal road whose operations are confined to the manufacturing area of Chicago. Yet in 1933, when it purchased only $434,000 of materials and supplies, as compared with $1,486,000 in 1929, it placed substantial orders with 100 companies supplying materials from 13 states, including Iowa, Minnesota, Wisconsin, Missouri, Nebraska and Washington in the West, and Massachusetts, Pennsylvania and Kentucky in the East.

The Terminal Railroad of St Louis operates only 95 miles of lines, all in the St. Louis-East St. Louis industrial area; yet in 1933, when purchases were reduced to $406,856 as compared with $1,922,000 in 1929, this road placed orders aggregating $500 or more with 125 companies supplying material from 14 states, including such eastern states as Connecticut, Delaware, Massachusetts, New Jersey, Alabama and Maryland, and such far western states as Washington.

When larger roads are considered the wide distribution of railroad purchases becomes still more apparent. The purchases of the Chicago, Rock Island & Pacific declined from $33,000,000 in 1929 to $9,390,000 in 1933; yet in 1933, this road placed orders with 2,000 companies, including 53 fuel producers, located in 200 towns of 36 states.

Purchases made by the Kansas City Southern of materials and supplies and equipment dropped from $4,991,000 in 1929 to $1,405,000 in 1933; but in 1933 it still ordered more than $500 of material from each of 250 different companies in 69 cities of 19 states, and the material was shipped from 27 states.

Purchases of materials and supplies and equipment on the Minneapolis & St. Louis declined from $2,503,000 in 1929 to $1,142,000 in 1933, but in the latter year this road purchased more than $500 from each of 89 companies in 58 cities in 18 states, and the material came from 25 states.

In 1933 the Chicago, Burlington & Quincy spent $26,695,000, or 70 per cent, less for materials and equipment

Firms, Cities and States Receiving Orders of $500 or More from Representative Railroads in 1933—All Cities and States Producing the Materials Are Not Included

	Companies	Cities	States
Baltimore & Ohio	...	...	20
Chicago & Eastern Illinois	595	97	20
Chicago & Illinois Midland	93	17	7
Chicago & Western Indiana	99	7	5
Chicago, Burlington & Quincy*	808	191	28
Chicago, Mil., St. Paul & Pac.	1,182	333	30
Chicago, Rock Island & Pacific*	611	145	32
Clinchfield	102	59	21
Florida East Coast	229	102	20
Fort Smith & Western	33	10	6
Illinois Central	1,052	236	26
Kansas City Southern	249	95	19
Lake Superior & Ishpeming	43	19	9
Louisiana & Arkansas	111	46	19
Louisville & Nashville	967	388	25
Minneapolis & St. Louis	186	61	18
Minn., St. P. & Sault Ste. Marie	770	242	25
Nashville, Chattanooga & St. Louis	296	122	19
Nevada Northern	20	8	8
New York, New Haven & Hartford*	455	135	19
Northern Pacific	...	200	19
Pittsburg & Shawmut	41	25	7
Richmond, Fred. & Potomac	155	63	17
St. Louis-San Francisco	512	256	32
Southern Pacific	1,397	246	31
Terminal of St. Louis	114	23	8
Texas & Pacific	412	120	25
Virginian*	...	140	20
Western Maryland	317	130	20

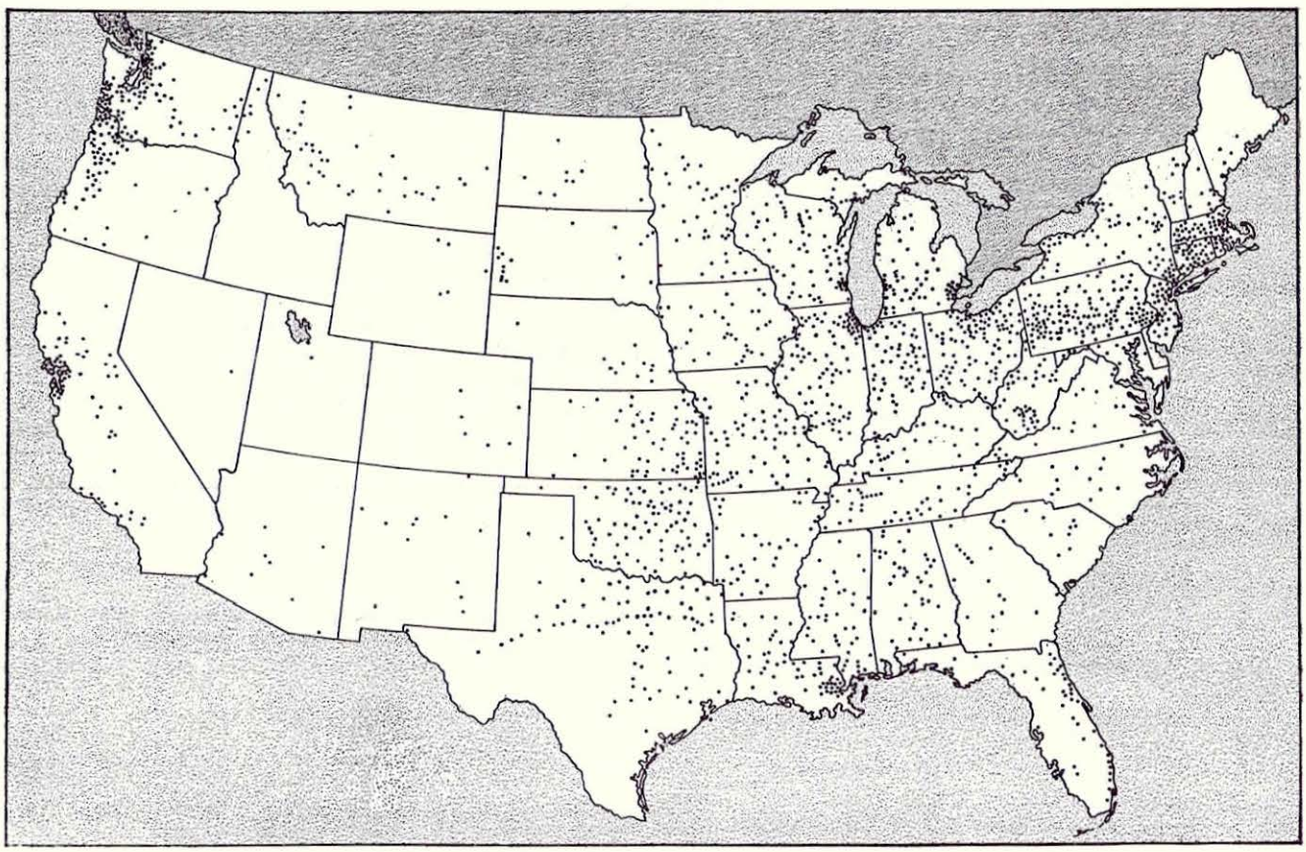
* Excluding heat, light, water and power companies, contractors and cartage.

Note. The number of states from which the railroads receive the shipments of materials generally exceeds the number of states in which the railroads place their orders.

than in 1929; yet approximately 654 companies in 195 cities in 28 states received orders totaling $1,000 or more, not counting 108 heat, light and power companies in 10 states, 33 building contractors in 10 states and 29 cartage firms in 6 states.

Last year the Southern Pacific purchased more than $500 of supplies from each of 1,400 companies located in 145 cities and towns of 33 states, materials and equipment coming from 847 companies in 78 towns of 31 states; printing from 25 companies in 8 towns of 5 states; commissary supplies from 324 companies in 36 towns of 12 states; ties and lumber from 324 companies in 62 towns of 9 states, fuel from 29 companies in 18 towns of 7 states, and electrical energy from 19 companies in 5 states.

Without attempting to count the many scattered companies from which one or more railroads bought less than $500 of material, and while available records of the larger purchases are not all complete, it has been found that the combined purchases of 26 railroads, operating 93,000 miles of line, or but two-fifths of the railway mileage in the country, were obtained last year, a sub-normal year, from 7,816 companies located in 1,661 towns of all the states.



Where the Railroads Buy

Dots Show Locations of Towns and Cities in Which One or More Railroad Made Substantial Purchases from One or More Companies in 1933. The Map Does Not Show in All Cases the Towns from Which the Finished Materials Were Shipped Nor All the Sources of the Raw Materials. The Records from Which the Map Was Prepared Cover Less Than Half of the Total Railway Mileage in the Country.

Every State Hit by Decline in Purchases

The full extent to which the different states share in railway purchases cannot be shown without reports from all carriers, and, since available details apportion expenditure for the most part among the states from which the bills are rendered, producing states necessarily appear to receive much less from railroads directly than is actually the case. Available records, moreover, are wholly deficient in showing the purchases made in producing states by manufacturers and contractors of railway material and railway work which are located in the same or other states. The figures nevertheless are challenging.

Eleven railroads foreign to Alabama and three roads operating in Alabama spent $11,650,000 less in that state in 1933 than in 1929. The direct purchases made in Michigan in 1933 by 16 roads, all but one of which are foreign to that state, were $1,215,000 under those in 1929. Montana is the loser by $1,000,000 per year in purchases from one of its railroads, and it is emphasized that the supplies obtained indirectly were not considered. Ohio is the loser by $6,351,000 per year from 20 railroads, all foreign to that state. Since 1930, 18 roads, all foreign to Pennsylvania but two, have been spending $12,000,000 less per year in that state, while 14 roads, all foreign but one to the state of Washington, are buying $2,500,000 less in that state, without considering supplies obtained indirectly from that state.

During 1932 and 1933 the railroads which operate in the Mississippi Valley states spent for equipment and supplies at least $166,000,000 less per year in Illinois for supplies and equipment than was spent in 1929; $22,000,000 less per year in Colorado; $12,000,000 less per year in Louisiana; $11,000,000 less per year in Mississippi; $20,000,000 less per year in Missouri; $25,-

Employment in Typical Railway Supply Industries—1929-1934—(Cont'd)

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70,000 Varieties of Materials

The purchases of the railroads, it should be emphasized, do not consist alone of new locomotives and cars and are not only composed of those materials peculiar to rail transportation; but they also include the widest variety of products of American industry, including automobiles, tractors, trucks, telephones, radios, typewriters, computing machines, office furniture and all materials familiar to the building trade. The Public Works Administration has divided the materials and supplies purchased for P.W.A. projects into 50 different classes. The railroads have almost uniformly followed the practice of dividing their purchases into 50 primary classes since 1911 and the combined purchases of the railroads have been reported in 30 classes since 1923, so great is the diversity of their buying. The average trunk-line railroad regularly carries in stock 50,000 or more different kinds, varieties and sizes of material, while 20,000 or more varieties of special items are normally purchased yearly.

Besides steel rail, the railroads purchase a wide variety of track accessories, including switches, guard rails and braces, tie plates, spikes, bolts, rail anchors, fence wire and hardware, and a wide variety of track tools, including chisels, spike mauls, drills, picks, shovels, adzes, brooms, wrenches, track jacks, track motor cars, weed cutters and burners, and other power tools.

The requirements of one railroad for one year prior to 1930 included 2,200 tons, or 45 carloads, of track bolts; 3,500 tons, or 70 carloads, of track spikes; 15,000

35 firms in the little town of Kittanning, Pa. This is only one example of similar occurrences throughout the country.

What has happened in the towns and cities as a result

Purchases Made in Typical Towns in 1933 by Individual Railroads

Town	State	Direct Purchases 1929	1933
Cedar District	Idaho	$20,299	$10,054
Des Moines	Iowa	4,721	1,506
Marshalltown		11,249	3,603
Monroe County Coal Field		435,572	8,804
Chicago	Illinois	303,912	97,047
Chicago		2,084,300	502,757
Franklin County		42,006	1,475
Fulton-Peoria Coal Field		637,858	507,586
Peoria		8,107	5,475
Atlanta	Georgia	163,939	99,039
Dalton		45,026	80
Hammond	Indiana	147,750	31,272
Terre Haute		22,164	4,633
Pittsburg	Kansas	69,633	32,053
Louisville	Kentucky	24,534	8,416
Lake Charles	Louisiana	25,378	9,765
Shreveport		396,921	136,131
Boston	Massachusetts	21,823	4,476
Detroit	Michigan	13,908	8,176
Escanaba		88,376	39,686
Gladstone		58,851	4,421
Sault Ste. Marie		16,273	12,347
Alexandria	Minnesota	7,865	660
Detroit Lakes		22,259	3,497
Duluth		132,296	125,014
Kimball		9,177	178
Minneapolis		315,791	138,737
Minneapolis		1,094,577	359,211
Northwoods		137,501	69,483
St. Paul		404,381	166,195
Shovel Lake		16,056	1,035
Virginia		54,585	None
Kansas City	Missouri	1,505,003	776,554
St. Louis		47,019	9,143
St. Louis		51,168	5,051
Mansville		2,964	404
Newark		25,391	2,103
New York City	New York	1,091,488	191,470
Rochester		13,835	2,866
Cleveland	Ohio	101,955	27,976
Wadsworth		10,710	2,851
Petroleum Fields	Oklahoma	16,520	43,825
Portland	Oregon	39,152	10,470
McKeesport	Pennsylvania	8,349	548
Pittsburgh		83,999	48,753
Watertown	South Dakota	3,396	1,303
Bruceton	Tennessee	7,369	2,341
Camden		7,255	3,046
Chattanooga		302,599	163,807
Decherd		5,493	1,776
Hohenwald		51,594	23,434
Johnsonville		114,058	None
Memphis		18,148	4,775
Palmer-Coalmont District		480,718	307,141
Pikesville		64,250	13,568
Ravenscroft District		10,603	1,739
White Bluff		16,209	2,028
Beaumont	Texas	30,746	12,114
Fort Smith		20,317	8,644
Port Arthur		135,514	21,980
Texarkana		26,620	15,467
Salt Lake City	Utah	21,435	7,289
Richmond		4,522	896
Pacific Fir Territory	Washington	62,792	24,355
Seattle		12,644	7,407
Tacoma		27,885	3,743
Butternut	Wisconsin	16,432	None
Fond du Lac		9,905	220
Goodman		111,310	31,801
Ladysmith		45,938	None
Mellen		33,228	5,047
Milwaukee		70,366	24,975
Neenah		21,976	4,364
Ogema		15,552	None
Owens		31,416	563
Park Falls		18,323	7,523
Phillips		43,232	8,142
Prentice		11,289	None
Rhinelander		45,111	22,912
White Lake		11,258	1,670
Southern Hardwood Territory	Louisiana	108,951	103,727

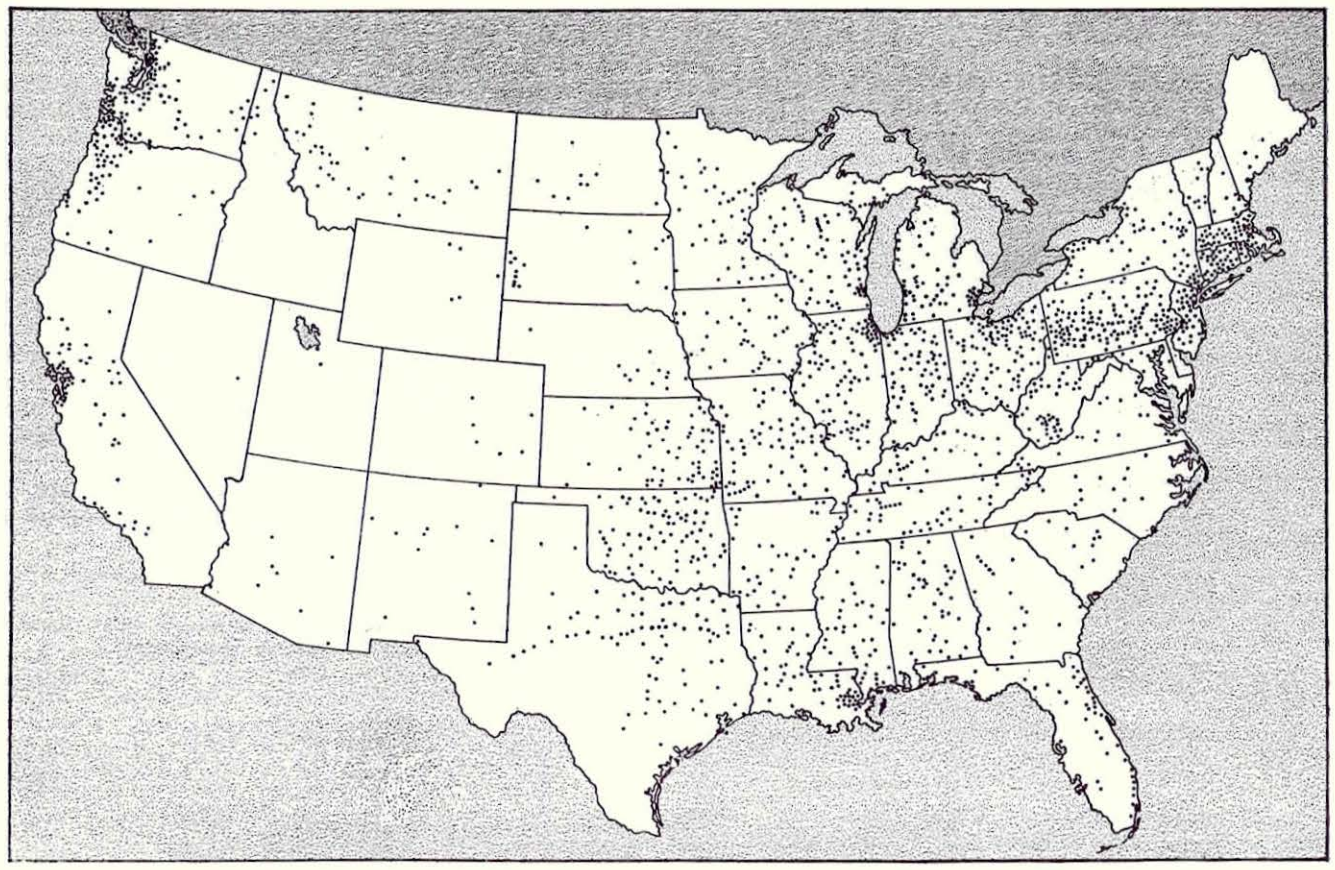
Note. The values are restricted to the purchases by one road in each instance and do not include any other expenditures which may have been incurred by the railroad or the railroad's employees in the particular town.

of reductions in railway purchases will appear in part from the expenditures made in a few of them in 1929 and 1933 by single roads for materials and supplies alone.

The purchases from a single road declined from $435,572 in 1929 to $8,804 in 1933 in the Monroe County coal field of Iowa and from $303,912 in 1929 to $97,047 in 1933 in Chicago. Those of another rail-

than in 1929; yet approximately 654 companies in 195 cities in 28 states received orders totaling $1,000 or more, not counting 108 heat, light and power companies in 10 states, 33 building contractors in 10 states and 29 cartage firms in 6 states.

Last year the Southern Pacific purchased more than $500 of supplies from each of 1,400 companies located in 145 cities and towns of 33 states, materials and equipment coming from 847 companies in 78 towns of 31 states; printing from 25 companies in 8 towns of 5 states; commissary supplies from 324 companies in 36 towns of 12 states; ties and lumber from 324 companies in 62 towns of 9 states, fuel from 29 companies in 18 towns of 7 states, and electrical energy from 19 companies in 5 states.



Where the Railroads Buy

Dots Show Locations of Towns and Cities in Which One or More Railroad Made Substantial Purchases from One or More Companies in 1933. The Map Does Not Show in All Cases the Towns from Which the Finished Materials Were Shipped Nor All the Sources of the Raw Materials. The Records from Which the Map Was Prepared Cover Less Than Half of the Total Railway Mileage in the Country.

Without attempting to count the many scattered companies from which one or more railroads bought less than $500 of material, and while available records of the larger purchases are not all complete, it has been found that the combined purchases of 26 railroads, operating 93,000 miles of line, or but two-fifths of the railway mileage in the country, were obtained last year, a sub-normal year, from 7,816 companies located in 1,661 towns of all the states.

Every State Hit by Decline in Purchases

The full extent to which the different states share in railway purchases cannot be shown without reports from all carriers, and, since available details apportion expenditure for the most part among the states from which the bills are rendered, producing states necessarily appear to receive much less from railroads directly than is actually the case. Available records, moreover, are wholly deficient in showing the purchases made in producing states by manufacturers and contractors of railway material and railway work which are located in the same or other states. The figures nevertheless are challenging.

Eleven railroads foreign to Alabama and three roads operating in Alabama spent $11,650,000 less in that state in 1933 than in 1929. The direct purchases made in Michigan in 1933 by 16 roads, all but one of which are foreign to that state, were $1,215,000 under those in 1929. Montana is the loser by $1,000,000 per year in purchases from one of its railroads, and it is emphasized that the supplies obtained indirectly were not considered. Ohio is the loser by $6,351,000 per year from 20 railroads, all foreign to that state. Since 1930, 18 roads, all foreign to Pennsylvania but two, have been spending $12,000,000 less per year in that state, while 14 roads, all foreign but one to the state of Washington, are buying $2,500,000 less in that state, without considering supplies obtained indirectly from that state.

During 1932 and 1933 the railroads which operate in the Mississippi Valley states spent for equipment and supplies at least $166,000,000 less per year in Illinois for supplies and equipment than was spent in 1929; $22,000,000 less per year in Colorado; $12,000,000 less per year in Louisiana; $11,000,000 less per year in Mississippi; $20,000,000 less per year in Missouri; $25,-

000,000 less per year in Texas, and $11,000,000 less per year in Wisconsin. The figures do not include the purchases made in these states by roads not operating in the Mississippi Valley states and do not completely show the volume of materials actually produced in some of those states, especially the western states, for the roads which do operate in them.

Cities in Every State Feel Reductions

The largest cities loom in the railway purchasing picture, both because they are manufacturing centers and also because they contain the administration offices

Companies and Cities from Which 26 Railroads Made Purchases of $500 or More in 1933*

State	Companies	Cities	State	Companies	Cities
Alabama	176	53	Nevada	4	2
Arizona	29	9	New Jersey	61	31
Arkansas	78	32	New Mexico	34	15
California	769	56	New York	340	30
Colorado	33	8	North Carolina	8	8
Connecticut	131	34	North Dakota	15	9
Delaware	5	3	Ohio	220	38
Florida	108	45	Oklahoma	175	76
Georgia	51	20	Oregon	233	63
Idaho	6	6	Pennsylvania	333	95
Illinois	1,281	110	Rhode Island	22	7
Indiana	91	26	South Carolina	10	8
Iowa	142	58	South Dakota	59	20
Kansas	143	60	Tennessee	204	54
Kentucky	290	74	Texas	232	75
Louisiana	155	40	Utah	21	3
Maryland	126	17	Vermont	4	3
Massachusetts	129	37	Virginia	86	29
Michigan	115	45	Washington	174	40
Minnesota	405	36	West Virginia	56	45
Mississippi	88	43	Wisconsin	295	83
Missouri	778	79	Wyoming	11	8
Montana	29	17		7,816	1,661
Nebraska	61	11			

* Excludes seven large railroads in the West, four large railroads in th South and nine of the largest railroads North of the Ohio River.

of the largest manufacturers and the offices of wh sale houses and other firms which represent wid scattered producers. Last year 26 railroads operati 95,000 miles of railroad placed substantial orders fo material and equipment with 1,377 companies in Chicago 42 companies in Des Moines, Iowa; 46 in Detroit, Mich. 263 in Minneapolis, Minn.; 199 in Kansas City, Mo.

Partial Purchases of Material and Equipment in Various States by Railroads

	Roads Not Operating in State	Roads Operating in State	Materials and Supplies Purchased 1929	Materials and Supplies Purchased 1933	Total Estimated Reduction 19 to 1933, In
Alabama	11	3	$15,273,285	$4,626,587	$34,940,0
Indiana	15	4	18,857,921	6,659,970	36,593,0
Maryland	12	2	1,234,579	615,495	1,857,0
Michigan	16	2	2,062,183	847,093	3,645,0
Montana	..	1	1,397,718	550,071	2,542,0
New Jersey	21	..	1,503,277	523,730	2,938,0
New York	19	..	5,641,750	1,551,527	12,270,0
Ohio	20	..	9,483,234	3,132,219	19,053,0
Oregon	9	1	531,873	137,821	1,182,0
Pennsylvania	18	1	15,468,015	3,276,261	36,575,0
South Dakota	2	4	793,183	43,137	2,250,0
Virginia	13	2	1,472,911	574,091	2,696,0
Washington	14	2	3,484,138	1,048,910	7,305,0
West Virginia	12	3	2,414,260	1,138,411	3,827,0
Wyoming	1	1	868,444	360,000	1,525,0

Note. The figures are restricted to the value of the orders placed in t states by the roads considered and do not show extent to which other sta participate, for example, by furnishing the raw material.

293 in St. Louis, Mo.; 281 in New York City; 97 Cleveland, Ohio; 108 in Philadelphia, Pa., and 101 Pittsburgh; 59 in Richmond, Va.; 63 in Seattle, Wash 126 in Los Angeles, Cal.; 55 in Oakland; 483 in S Francisco; and 123 in Milwaukee, Wis. These sa

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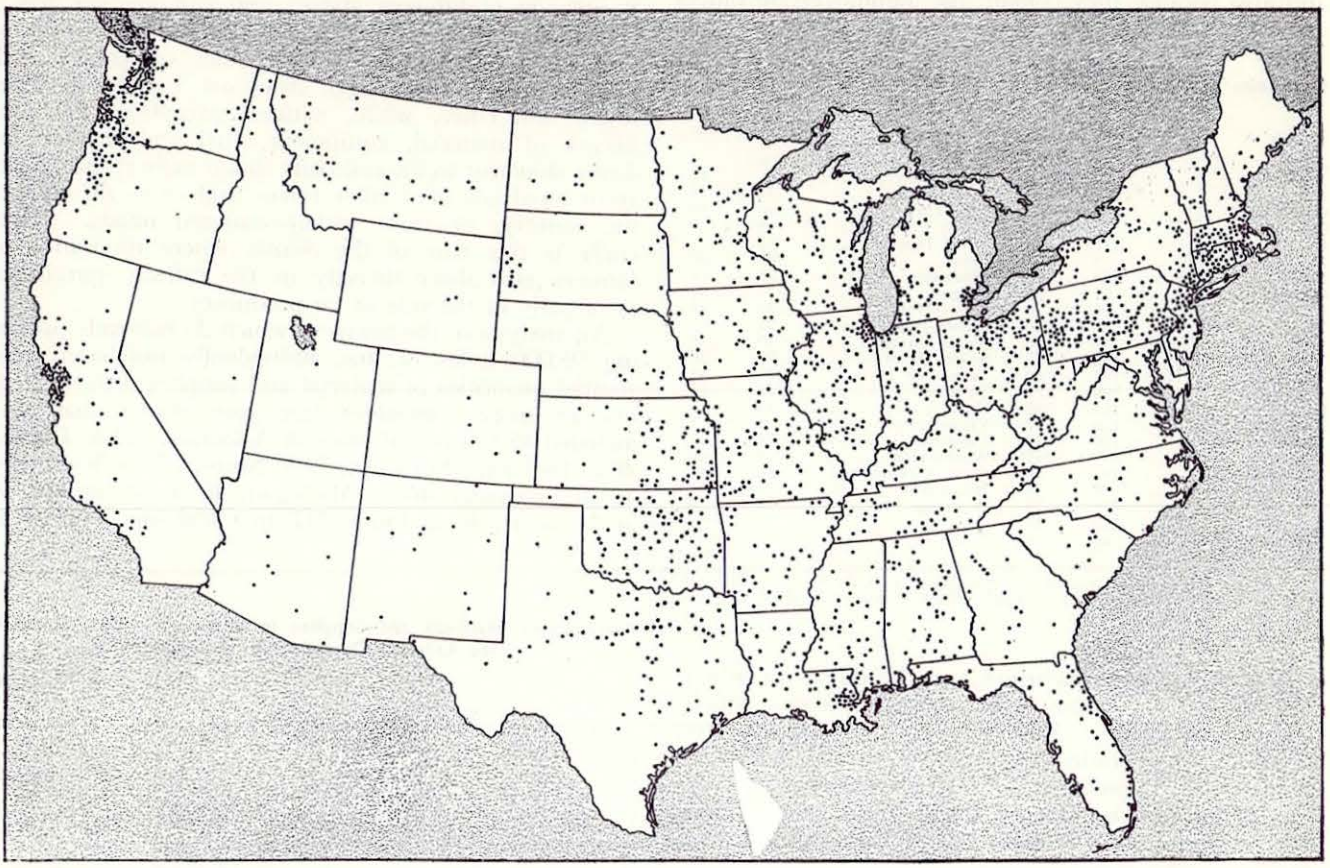
Besides steel rail, the railroads purchase a wide variety of track accessories, including switches, guard rails and braces, tie plates, spikes, bolts, rail anchors, fence wire and hardware, and a wide variety of track tools, including chisels, spike mauls, drills, picks, shovels, adzes, brooms, wrenches, track jacks, track motor cars, weed cutters and burners, and other power tools.

The requirements of one railroad for one year prior to 1930 included 2,200 tons, or 45 carloads, of track bolts; 3,500 tons, or 70 carloads, of track spikes; 15,000

than in 1929; yet approximately 654 companies in 195 cities in 28 states received orders totaling $1,000 or more, not counting 108 heat, light and power companies in 10 states, 33 building contractors in 10 states and 29 cartage firms in 6 states.

Last year the Southern Pacific purchased more than $500 of supplies from each of 1,400 companies located in 145 cities and towns of 33 states, materials and equipment coming from 847 companies in 78 towns of 31 states; printing from 25 companies in 8 towns of 5 states; commissary supplies from 324 companies in 36 towns of 12 states; ties and lumber from 324 companies in 62 towns of 9 states, fuel from 29 companies in 18 towns of 7 states, and electrical energy from 19 companies in 5 states.

Without attempting to count the many scattered companies from which one or more railroads bought less than $500 of material, and while available records of the larger purchases are not all complete, it has been found that the combined purchases of 26 railroads, operating 93,000 miles of line, or but two-fifths of the railway mileage in the country, were obtained last year, a sub-normal year, from 7,816 companies located in 1,661 towns of all the states.



Where the Railroads Buy

Dots Show Locations of Towns and Cities in Which One or More Railroad Made Substantial Purchases from One or More Companies in 1933. The Map Does Not Show in All Cases the Towns from Which the Finished Materials Were Shipped Nor All the Sources of the Raw Materials. The Records from Which the Map Was Prepared Cover Less Than Half of the Total Railway Mileage in the Country.

Every State Hit by Decline in Purchases

The full extent to which the different states share in railway purchases cannot be shown without reports from all carriers, and, since available details apportion expenditure for the most part among the states from which the bills are rendered, producing states necessarily appear to receive much less from railroads directly than is actually the case. Available records, moreover, are wholly deficient in showing the purchases made in producing states by manufacturers and contractors of railway material and railway work which are located in the same or other states. The figures nevertheless are challenging.

Eleven railroads foreign to Alabama and three roads operating in Alabama spent $11,650,000 less in that state in 1933 than in 1929. The direct purchases made in Michigan in 1933 by 16 roads, all but one of which are foreign to that state, were $1,215,000 under those in 1929. Montana is the loser by $1,000,000 per year in purchases from one of its railroads, and it is emphasized that the supplies obtained indirectly were not considered. Ohio is the loser by $6,351,000 per year from 20 railroads, all foreign to that state. Since 1930, 18 roads, all foreign to Pennsylvania but two, have been spending $12,000,000 less per year in that state, while 14 roads, all foreign but one to the state of Washington, are buying $2,500,000 less in that state, without considering supplies obtained indirectly from that state.

During 1932 and 1933 the railroads which operate in the Mississippi Valley states spent for equipment and supplies at least $166,000,000 less per year in Illinois for supplies and equipment than was spent in 1929; $22,000,000 less per year in Colorado; $12,000,000 less per year in Louisiana; $11,000,000 less per year in Mississippi; $20,000,000 less per year in Missouri; $25,-

000,000 less per year in Texas, and $11,000,000 less per year in Wisconsin. The figures do not include the purchases made in these states by roads not operating in the Mississippi Valley states and do not completely show the volume of materials actually produced in some of those states, especially the western states, for the roads which do operate in them.

Cities in Every State Feel Reductions

The largest cities loom in the railway purchasing picture, both because they are manufacturing centers and also because they contain the administration offices of the largest manufacturers and the offices of wholesale houses and other firms which represent widely-scattered producers. Last year 26 railroads operating 95,000 miles of railroad placed substantial orders for material and equipment with 1,377 companies in Chicago; 42 companies in Des Moines, Iowa; 46 in Detroit, Mich.; 263 in Minneapolis, Minn.; 199 in Kansas City, Mo.; 293 in St. Louis, Mo.; 281 in New York City; 97 in Cleveland, Ohio; 108 in Philadelphia, Pa., and 101 in Pittsburgh; 59 in Richmond, Va.; 63 in Seattle, Wash.; 126 in Los Angeles, Cal.; 55 in Oakland; 483 in San Francisco; and 123 in Milwaukee, Wis. These same cities also contain numerous other companies from which the railroads obtain their requirements indirectly.

Railway buying is not confined to such cities, however. In fact, many manufacturers in these large cities operate factories in other places. One railway manufacturer, with headquarters in Chicago, maintains 17 factories and branch offices in 15 cities in 10 states. Another has 12 plants in 12 cities in 11 states. Still another has 6 plants in 5 cities in 4 states, while another has 6 plants in 6 cities in 5 states. One manufacturer in the East has 6 plants in 6 cities in 5 states; another maintains factories in 4 cities in 4 states; another has 9 factories in 8 cities in 6 different states; and still another has 9 plants in 9 cities of 6 states. The manufacturing or producing operations of many other companies with headquarters in the larger cities are located in other towns and cities, while, without exception, the producers of material, equipment, fuel and lumber for direct shipment to the railroads obtain their requirements from hundreds of smaller towns and cities throughout the country, or from widely-scattered mines. Especially is this true of the South, where thousands of farmers also share directly in the railway purchases, principally in the role of tie producers.

An analysis of the towns in which 26 railroads operating 95,000 miles of line, individually purchased substantial quantities of material and supplies directly from one or more companies last year, shows that they included 45 towns and cities in Arkansas, 124 in Illinois, 28 in Indiana, 82 in Iowa, 79 in Kansas, 74 in Kentucky, 44 in Louisiana, 46 in Michigan, 40 in Minnesota, 92 in Missouri, 48 in Ohio, 117 in Oklahoma, and 87 in Wisconsin. Among these are hundreds of inconspicuous towns like Anniston, Fayette and Hasper in Alabama; Corning, Crossett, Fordyce and ElDorado in Arkansas; Falcon, Genoa and Simla in Colorado; Shelton, Terryville, Seymour and Wallingford in Connecticut; Lakewood and Perry in Florida; Athens, Eastman and Thomasville in Georgia; Dover, Plummer and Spirit Lake in Idaho; Chester, Dolton, Granite City, Lincoln, Lockport, Madison, Pana and Peotone in Illinois; Anderson, Attica, Goshen and Bedford in Indiana; Bettendorf, Clear Lake, Centerville, Fairfield and Muscatine in Iowa; etc.

What Has Happened in Typical Towns

That the purchases made by railroads are often widely distributed in the smaller localities, as well as in the larger cities, moreover, is plainly shown by the Pittsburg & Shawmut, which, while making purchases among 52 companies in Pittsburg last year, bought supplies from

Companies and Cities from Which 26 Railroads Made Purchases of $500 or More in 1933*

State	Companies	Cities	State	Companies	Cities
Alabama	176	53	Nevada	4	2
Arizona	29	9	New Jersey	61	31
Arkansas	78	32	New Mexico	34	15
California	769	56	New York	340	30
Colorado	33	8	North Carolina	8	8
Connecticut	131	34	North Dakota	15	9
Delaware	5	3	Ohio	220	38
Florida	108	45	Oklahoma	175	76
Georgia	51	20	Oregon	233	63
Idaho	6	6	Pennsylvania	333	95
Illinois	1,281	110	Rhode Island	22	7
Indiana	91	26	South Carolina	10	8
Iowa	142	58	South Dakota	59	20
Kansas	143	60	Tennessee	204	54
Kentucky	290	74	Texas	232	75
Louisiana	155	40	Utah	21	3
Maryland	126	17	Vermont	4	3
Massachusetts	129	37	Virginia	86	29
Michigan	115	45	Washington	174	40
Minnesota	405	36	West Virginia	56	45
Mississippi	88	43	Wisconsin	295	83
Missouri	778	79	Wyoming	11	8
Montana	29	17		7,816	1,661
Nebraska	61	11			

* Excludes seven large railroads in the West, four large railroads in the South and nine of the largest railroads North of the Ohio River.

Partial Purchases of Material and Equipment in Various States by Railroads

	Roads Not Operating in State	Roads Operating in State	Materials and Supplies Purchased 1929	Materials and Supplies Purchased 1933	Total Estimated Reduction 1930 to 1933, Incl.
Alabama	11	3	$15,273,285	$4,626,587	$34,940,000
Indiana	15	4	18,857,921	6,659,970	36,593,000
Maryland	12	2	1,234,579	615,495	1,857,000
Michigan	16	2	2,062,183	847,093	3,645,000
Montana	..	1	1,397,718	550,071	2,542,000
New Jersey	21	..	1,503,277	523,730	2,938,000
New York	19	..	5,641,750	1,551,527	12,270,000
Ohio	20	..	9,483,234	3,132,219	19,053,000
Oregon	9	1	531,873	137,821	1,182,000
Pennsylvania	18	1	15,468,015	3,276,261	36,575,000
South Dakota	2	4	793,183	43,137	2,250,000
Virginia	13	2	1,472,911	574,091	2,696,000
Washington	14	2	3,484,138	1,048,910	7,305,000
West Virginia	12	3	2,414,260	1,138,411	3,827,000
Wyoming	1	1	868,444	360,000	1,525,000

Note. The figures are restricted to the value of the orders placed in the states by the roads considered and do not show extent to which other states participate, for example, by furnishing the raw material.

Purchases of Materials and Supplies in Mississippi Valley States by the Railroads Operating in Those States

	1929	1933	Total Est'd. Red. 1930 to 1933, Incl.
Arkansas	$8,500,000	$2,600,000	$17,700,000
Colorado	27,000,000	5,000,000	66,000,000
Illinois	220,900,000	54,700,000	498,600,000
Iowa	10,900,000	2,400,000	25,500,000
Kansas	10,700,000	2,800,000	23,700,000
Kentucky	16,700,000	4,800,000	35,700,000
Louisiana	13,700,000	2,900,000	32,400,000
Minnesota	28,300,000	9,600,000	56,100,000
Mississippi	4,300,000	800,000	10,500,000
Missouri	51,700,000	10,500,000	123,600,000
Nebraska	4,300,000	1,400,000	8,700,000
Oklahoma	10,600,000	3,500,000	21,300,000
Tennessee	5,500,000	1,700,000	11,400,000
Texas	34,900,000	10,000,000	74,700,000
Wisconsin	13,900,000	3,500,000	31,200,000

35 firms in the little town of Kittanning, Pa. This is only one example of similar occurrences throughout the country.

What has happened in the towns and cities as a result of reductions in railway purchases will appear in part from the expenditures made in a few of them in 1929 and 1933 by single roads for materials and supplies alone.

The purchases from a single road declined from $435,572 in 1929 to $8,804 in 1933 in the Monroe County coal field of Iowa and from $303,912 in 1929 to $97,047 in 1933 in Chicago. Those of another railroad dropped from $2,084,300 in 1929 to $502,757 in 1933 in the same city. Retrenchments in the buying of single railroads reduced expenditures from $637,858 to $507,586 in the Fulton-Peoria, Ill., coal field; from $137,750 to $31,272 in Hammond, Ind.; from $69,633 to $32,053 in Pittsburg, Kans.; from $396,921 to $136,131 in Shreveport, La.; from $88,376 to $39,686 in Escanaba, Mich.; and from $58,851 to $4,421 in Gladstone, Mich. One railroad reduced its purchases from $315,791 in 1929 to $138,738 in 1933, while another railroad reduced its purchases from $1,094,577 to $359,211, in Minneapolis, Minn. Records of single railroads further disclose declines from $404,381 to $166,195 in St. Paul, Minn.; from $54,585 to nothing in Virginia, Minn.; from $1,505,000 to $766,554 in Kansas City, Mo.; from $1,091,488 to $191,470 in New York City; from $101,953 to $27,976 in Cleveland, Ohio; from $62,792 to $24,355 in Portland, Ore.; from $20,317 to $8,644 in Fort Smith, Ark.; from $135,514 to $21,980 in Port Arthur, Tex.; from $45,938 to nothing in Ladysmith, Wis.; and from $33,228 to $5,047 in Mellon, Wis.

Purchases Made in Typical Towns in 1933 by Individual Railroads

Town	State	Direct Purchases 1929	1933
Cedar District	Idaho	$20,299	$10,054
Des Moines	Iowa	4,721	1,506
Marshalltown		11,249	3,603
Monroe County Coal Field		435,572	8,804
Chicago	Illinois	303,912	97,047
Chicago		2,084,300	502,757
Franklin County		42,006	1,475
Fulton-Peoria Coal Field		637,858	507,586
Peoria		8,107	5,475
Atlanta	Georgia	163,939	99,039
Dalton		45,026	80
Hammond	Indiana	147,750	31,272
Terre Haute		22,164	4,633
Pittsburg	Kansas	69,633	32,053
Louisville	Kentucky	24,534	8,416
Lake Charles	Louisiana	25,378	9,765
Shreveport		396,921	136,131
Boston	Massachusetts	21,823	4,476
Detroit	Michigan	13,908	8,176
Escanaba		88,376	39,686
Gladstone		58,851	4,421
Sault Ste. Marie		16,273	12,347
Alexandria	Minnesota	7,865	660
Detroit Lakes		22,259	3,497
Duluth		132,296	125,014
Kimball		9,177	178
Minneapolis		315,791	138,737
Minneapolis		1,094,577	359,211
Northwoods		137,501	69,483
St. Paul		404,381	166,195
Shovel Lake		16,056	1,035
Virginia		54,585	None
Kansas City	Missouri	1,505,003	776,554
St. Louis		47,019	9,143
St. Louis		51,168	5,051
Mansville		2,964	404
Newark		25,391	2,103
New York City	New York	1,091,488	191,470
Rochester		13,835	2,866
Cleveland	Ohio	101,955	27,976
Wadsworth		10,710	2,851
Petroleum Fields	Oklahoma	16,520	43,825
Portland	Oregon	39,152	10,470
McKeesport	Pennsylvania	8,349	548
Pittsburgh		83,999	48,753
Watertown	South Dakota	3,396	1,303
Bruceton	Tennessee	7,369	2,341
Camden		7,255	3,046
Chattanooga		302,599	163,807
Decherd		5,493	1,776
Hohenwald		51,594	23,434
Johnsonville		114,058	None
Memphis		18,148	4,775
Palmer-Coalmont District		480,718	307,141
Pikesville		64,250	13,568
Ravenscroft District		10,603	1,739
White Bluff		16,209	2,028
Beaumont	Texas	30,746	12,114
Fort Smith		20,317	8,644
Port Arthur		135,514	21,980
Texarkana		26,620	15,467
Salt Lake City	Utah	21,435	7,289
Richmond		4,522	896
Pacific Fir Territory	Washington	62,792	24,355
Seattle		12,644	7,407
Tacoma		27,885	3,743
Butternut	Wisconsin	16,432	None
Fond du Lac		9,905	220
Goodman		111,310	31,801
Ladysmith		45,938	None
Mellen		33,228	5,047
Milwaukee		70,366	24,975
Neenah		21,976	4,364
Ogema		15,552	None
Owens		31,416	563
Park Falls		18,323	7,523
Phillips		43,232	8,142
Prentice		11,289	None
Rhinelander		45,111	22,912
White Lake		11,258	1,670
Southern Hardwood Territory	Louisiana	108,951	103,727

Note. The values are restricted to the purchases by one road in each instance and do not include any other expenditures which may have been incurred by the railroad or the railroad's employees in the particular town.

Employment Reduced in Small Towns

The immediate results of these reductions in railway purchases in various cities are further indicated by the experience of producers of railway supplies and equipment in some of these or similar towns in the various states.

Marion, Ind., is one of four beneficiaries of a railway supply manufacturer that paid $51,500 in local taxes and $104,000 in Federal taxes in 1929. Although conditions were improved this year by the increased railway buying, this one plant in Marion employed only 190

Employment in Typical Railway Supply Industries—1929-1934

State and Town	Wage Earners 1929	1934	Wages 1929	1934
Alabama:				
Birmingham	320	167	.....	.....
California:				
Berkeley	75	25	.....	.....
Illinois:				
Chicago	26	19	35,130	11,600[2]
Chicago	125	125	315,000	225,000
Chicago	200	50	400,000	100,000
Chicago	51	36	140,000	90,000
Chicago	20	10	30,000	17,000
Chicago	10	7	71,000	34,457
Harvey	300	300	376,987	326,331[1]
Hoopeston	75	20	65,000	13,000
Rockford	570	400	1,300,000	620,000
West Pullman	550	375	706,784	290,395[1]
Indiana:				
East Chicago	1,084	921	.....	.....
East Chicago	25	10	19,242	7,067
Elkhart	760	342	1,296,734	433,174
Evansville	121	470	115,861	427,578[2]
Hammond	56	36	77,106	22,413[1]
Marion	555	190	670,000	207,000
Maryland:				
Baltimore	80	73	136,000	79,000
Massachusetts:				
Boston	1,200	800	.....	.....
Boston	451	362	644,488	396,396
Framingham	500	300	.....	.....
Needham	25	11	48,202	8,007[1]
Michigan:				
Benton Harbor	125	35	200,000	25,000
Grand Rapids	335	150	515,000	192,000
Missouri:				
Crystal City	1,577	1,086	2,342,523	869,961[1]
St. Louis	344	226	530,037	198,663[2]
New Jersey:				
Camden	120	100	.....	.....
Jersey City	1,045	912	1,744,120	1,229,384
Passaic	125	75	108,000	85,000
Richard	106	18	14,858	1,759

Employment in Typical Railway Supply Industries—1929-1934—(Cont'd)

State and Town	Wage Earners 1929	Wage Earners 1934	Wages 1929	Wages 1934
New York:				
Buffalo	725	220	1,200,000	170,000
Depew	230	245	4,865	5,250
Rochester	353	224	557,352	174,374[4]
Troy	274	189	396,000	174,000
Ohio:				
Barberton	910	691	1,253,098	641,508[1]
Canton	125	25	125,000	25,000
Cincinnati	200	130	281,877	130,000
Cincinnati	79	52	2,690	1,121
Dillonvale	449	128	51,364[5]	10,306[5]
Fairpoint	51	326	6,386[5]	37,443[5]
Fultonham	333	244	500,046	168,464[1]
Lafferty	432	357	48,038[5]	28,115[5]
Mount Vernon	286	144	406,377	142,613
Piney Fork	261	597	22,848[5]	55,636[5]
Piney Fork	Idle	379	.....	29,435[5]
Willow Grove	Idle	413	.....	36,055
Pennsylvania:				
Burnham	191	164	155,125	70,329[1]
Creighton	1,141	1,098	2,032,266	933,772[1]
Easton	655	489	1,171,259	304,071
East Pittsburgh	13,883	6,501	25,353,384	6,459,067[1]
Elwood City	100	50	76,000	35,000
Danville	297	285	31,779	21,335
Derry	346	168	499,108	150,203[1]
Ford City	1,870	1,432	2,969,834	1,093,949[1]
Franklin	235	200	382,600	154,900
Franklin	485	250	380,000	200,000
Greenville	2,892	2,555	303,686	241,955
Homewood, Pitts.	488	248	774,365	296,973[1]
Johnstown	1,216	1,095	2,230,255	728,803[1]
Lebanon	320	275	502,845	241,568[2]
Meadville	112	73	166,234	46,640[3]
Philadelphia	55	26	141,810	49,429[1]
Pittsburgh	144	148	246,390	104,893[2]
Pittsburgh	6,118	3,359	7,101,435[1]	2,749,326[1]
Nuttall, Pitts.	524	273	986,005	290,164[1]
Reading	1,955	1,361	226,749	109,912
Sharon	2,362	987	3,807,831	973,548[1]
South Philadelphia	2,068	1,712	3,774,165	1,751,267[1]
Stoyestown	117	114	13,678	9,429
Versailles	35	23	39,780	14,465[1]
Virginia:				
Portsmouth	44	62	49,098	39,442[2]
Roanoke	501	168	.....	.....
West Virginia:				
Clarksburg	454	655	753,290	681,545[1]
Sabraton	42	33	69,541	17,711[1]
Wisconsin:				
Milwaukee	1,200	720	1,800,000	700,000
Sturtevant	200	Closed	.....	.....
Chicago; Milwaukee; Rockford; Buffalo; Pittsburgh and Berwick, Pa.	...	...	1,500,000	950,000
52 car plants—var. locations..	34,250	12,075	49,700,000	11,700,000

[1] 9 mo.
[2] 10 mo.
[3] 8 mo.
[4] 40 wk.
[5] September.

wage earners this year and expended only $207,000 locally for labor, as compared with the employment of 555 wage earners at $670,000 in 1929 for labor.

Vital to the community life of Reading, Pa., is a producer of railway supplies that has been compelled to reduce its force from 1,955 wage earners in 1929 to 1,361 in 1934 and its pay-roll from $226,749 to $109,912, largely because of the reduction in railway purchases.

A factory of prime importance to Buffalo, N. Y., reduced its employment from 725 wage earners in 1929 to 220 in 1934 and its payments for labor from $1,200,000 to $170,000 because of the decline in railway purchases upon which it entirely depends. A factory of major importance to Benton Harbor, Mich., reduced its expenditures for labor from $200,000 to $25,000 because of declines in railway buying on which it depends. For the same reason, although not to the same extent, a single factory in Boston, Mass., is employing only 800 men this year, as compared with 1,200 in 1929, while a similar factory in Framingham, Mass., is employing only 300 men, as compared with 500 in 1929.

In Milwaukee, Wis., is a $3,500,000 industry that paid $200,000 taxes in 1929 which has been forced to reduce its employees from 1,200 in 1929 to 720 in 1934, and its expenditures in that city for labor from $1,800,000 in 1929 to $700,000 in 1934, largely because of declines in purchases by railroads.

One industry in Chicago that paid $108,000 in taxes in 1929 has been compelled to reduce its expenditures for labor from $400,000 to $100,000 because of declines in purchases by railroads upon which it wholly depends.

Entirely because of declines in railway buying, another industry with plants in Chicago, Milwaukee, Wis., Rockford, Ill., Buffalo, N. Y., and Pittsburgh, Pa., is spending $550,000 less for labor this year in those cities than in 1929. In Dillonville, Ohio, a coal mine is working only 128 men this year, compared with 449 in 1929, because of declines in railway purchases. Similarly and for the same reason, one industry in East Chicago, Ind., is employing 160 fewer men, while the third largest industry of Roanoke, Va., has reduced its employment from 501 wage earners to 108, and one of the principal industries of Birmingham, Ala., has reduced its employment from 320 to 167.

Notwithstanding increases in railway buying this year, a $54,000,000 industry in Pittsburgh that paid $1,500,000 taxes in 1929 has been forced to reduce its force from 6,118 wage earners in the first nine months of 1929 to 3,350 in the first nine months of 1934, and its expenditures for labor from $7,100,000 to $2,750,000, because of the declines in purchases from railroads which take 90 to 95 per cent of its output, while another industry in Pittsburgh, Pa., partially because of declines in railway buying, has reduced its employment in that city from 13,883 to 6,501, and its pay-roll expenditures from $25,355,000 to $6,450,000.

The largest industry in Elkhart, Ind., is a $1,780,000 business which paid $28,426 locally in taxes. Yet, because of reduced purchasing by railroads which take 65 per cent of its output, that industry is employing only 342 men this year, as compared with 760 in 1929, and is paying $865,000 less per year for wages and salaries.

70,000 Varieties of Materials

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Besides steel rail, the railroads purchase a wide variety of track accessories, including switches, guard rails and braces, tie plates, spikes, bolts, rail anchors, fence wire and hardware, and a wide variety of track tools, including chisels, spike mauls, drills, picks, shovels, adzes, brooms, wrenches, track jacks, track motor cars, weed cutters and burners, and other power tools.

The requirements of one railroad for one year prior to 1930 included 2,200 tons, or 45 carloads, of track bolts; 3,500 tons, or 70 carloads, of track spikes; 15,000

tons, or 300 carloads, of tie plates; and 18,000 track shovels; and the purchases of all the railroads in 1929 for track materials amounted to $70,971,000; in contrast, in 1933, they fell to $16,950,000, a reduction of $53,000,000, or 75 per cent.

Their purchases include all kinds of structural steel for bridges and buildings, as well as plates, sheets, forgings and shapes for building and repairing locomotives and cars and other structures. For this class of material alone, the railroads spent $53,330,000 in 1929 and only $13,750,000 in 1933—a reduction of $43,500,000, or 76 per cent. The requirements for railway signaling include telegraph and telephone wire and instruments, pole line hardware, batteries, complicated equipment for operating switches and indicating train movements, etc.; they are so diversified that many railroads operate separate storehouses to handle them, the total expenditures for these materials alone reaching $30,878,000 in 1929 and declining to $6,250,000 in 1933, a reduction of $24,625,000, or 80 per cent.

Purchases of such commonplace commodities as bolts, rivets and springs not otherwise classified, amounted to $20,272,000 in 1929, thereafter declining to $8,550,000 in 1933, a reduction of $11,722,000, or 63 per cent. Electrical equipment, not included in other purchase classifications, includes hundreds of specialties from electric dynamos for lighting cars, locomotives and shops and producing energy for extensive welding operations and magnet cranes, to electrical equipment for crossing alarms, ventilating systems and for automotive and train operation. For this material alone, the roads spent $17,641,000 in 1929 and but $6,950,000 in 1933—a reduction of $10,590,000, or 60 per cent; they also spent $25,043,000 in 1929 for special mechanical appliances for cars and locomotives, not counting those included in new equipment. In 1929, they spent $50,640,000 for furnaces, lathes, power presses, and an assortment of machine tools, the variety of which can be appreciated only by visiting a locomotive repair shop. By contrast, corresponding expenditures in 1933 were only $14,950,000, a reduction of $35,695,000, or 70 per cent.

They buy fuel oil, gasoline and kerosene by the tank load, but they also require so many kinds of special greases, oils and lubricants for trains, machinery and automotive and equipment and track, as well as illuminating oils for use in lanterns and switch lamps, as to justify elaborately equipped oil-houses on many roads to house and distribute such supplies. The expenditures for these supplies, exclusive of the fuel oils, amounted to $24,328,000 in 1929 and declined to $13,340,000 in 1933, a reduction of $11,000,000, or 50 per cent.

The purchases of the railways include 100 different classes of products of the rubber, leather and fibre goods industries in the form of hose, belting, piping and insulation, representing an expenditure of $10,000,000 in 1929; more than 150 different classes of glass, drugs, chemicals and paints, involving an expenditure of $36,000,000, in 1929; 600 classes of materials and products, such as lamps, lanterns, blankets, tinware, filing cases, stoves, etc., for use on locomotives, trains, and in stations, offices, etc.

These purchases are exclusive of $25,567,000 expended in 1929 for stationery and printing, and approximately $28,599,000 for tableware, utensils and equipment, as well as supplies for restaurants and dining cars.

Railway Purchases—Materials and Supplies—1929-1933*

	1929 (Thousands)	1933 (Thousands)	Reduction (Thousands)
Fuel:			
Coal	$296,371	$151,150	$145,221
Fuel oil	62,132	24,350	37,782
All other	5,889	3,650	2,239
Total fuel	$364,392	$179,150	$185,242
Forest Products:			
Cross ties	$83,421	$19,750	$63,671
Switch and bridge ties	10,642	3,040	7,602
Timber and lumber	55,002	16,250	38,752
Other forest products	8,486	2,145	6,341
Total forest products	$157,551	$41,185	$116,366
Iron and Steel Products:			
Steel rail	$94,195	$10,650	$83,545
Wheels, axles and tires	41,269	19,050	22,219
Track fastenings	70,971	16,950	54,021
Structural and bar steel	57,330	13,750	43,580
Flues for boilers	7,194	3,390	3,804
Telegraph and signal	30,878	6,245	24,633
Bolts, nuts, springs, etc.	20,272	8,550	11,722
Locomotive and car castings	65,086	19,150	45,936
Machinery, boilers and misc.	50,645	14,950	35,695
Total iron and steel	$437,840	$112,685	$325,155
Miscellaneous:			
Cement	$7,628	$1,350	$6,278
Lubricating and illuminating	24,328	13,340	10,988
Metals and metal products	57,497	19,550	37,947
Ballast	23,750	5,160	18,590
Appliances, locomotives and cars	25,043	8,650	16,393
Electrical materials	17,641	6,950	10,691
Stationery and printing	25,567	11,575	13,992
Supplies for dining cars	28,899	9,350	19,549
Rubber and leather goods	9,657	4,505	5,152
Paint supplies, drugs and chemicals	35,985	14,900	21,085
Train and station supplies and misc.	113,757	29,400	84,357
Total miscellaneous	$369,752	$124,730	$245,022
Grand Total	$1,329,535	$457,750	$871,785

* Excludes new locomotives and cars and materials and supplies acquired under construction contracts.

Recovery Hinges on Purchases

It should be unnecessary, after the prolonged period of the depression, to state, and still less necessary with the facts presented, to argue that when reductions are made in purchases from the industries that undertake to supply the requirements of the railroads directly, corresponding reductions are required in the employment and pay-rolls of those industries in hundreds of cities and towns all over the country; that the wage earners who lost their jobs in those industries and those who continue to work in those industries, but with the fear of further reductions facing them, reduce their expenditures; and that each industry immediately affected by the reductions in railway purchases must also pare its expenditures for materials and supplies from other industries, thus causing other industries and their employees in the same or other towns to reduce their expenditures until the solvency of the communities yields with increasing speed to foreclosures, bankruptcies, human suffering, and finally to the dole.

Railroads are often called the arteries of commerce because they are carriers of passengers and freight, but, when the volume, diversity and distribution of their buying power is considered, the appropriateness of the metaphor becomes more apparent. Maintain and conserve the channels of trade, and cities and towns prosper. Restrict and improverish these arteries of business and the country suffers. When the enervating effect of subnormal business is everywhere evident, it is not surprising that people who know what the buying power of the railroads means to the country, search for the means of restoring it to some measure of its normal proportions. It is one field of study where the North and the South and the East and the West can meet with a real community of interest.

Railways' Purchases Respond Invariably to Trend of Net Earnings

Past performance shows that reduced earnings always bring reduced purchases and that revival in profits makes avid buyers of the railways

WE ARE still living under the capitalist system in this country, and the fuel which makes capitalism go is profits. This is true in the railroad business just as it is in any other business. If profits disappear, then business activity subsides. There is no alternative. If a business earns no profit, then it has no funds with which to buy materials and equipment to expand or improve its service. Furthermore, if it has no profits, it likewise has no credit, so it cannot borrow money for expansion or improvement.

The opinion seems to prevail in some quarters that all that is needed to enable the railroads to contribute to the revival of the durable goods industries is to make liberal loans for that purpose available to them through the Reconstruction Finance Corporation or PWA. This supposition is in error. Only roads with good credit can borrow government money. The government agencies do not lend money to railroads whose credit is unsatisfactory. And the railroads which do not have good credit are the ones which are not making any money—an uncomfortably large proportion of them, incidentally, being in that category today. The use of the credit of the federal government where private sources are unable to supply it, is legitimate and helpful. But such credit cannot be, and is not being, extended to railroads which have exhausted their ability to command it by reason of the fact that they have gone so long without earning any profits.

Profits Principal Source of Purchases of Durable Goods

Revival of the durable goods industries is necessary for economic recovery. The customers of the durable goods industries are, to a large extent, other industries. The profits of these other industries are the funds upon which they rely very largely—either directly or as a source of credit—for their purchases from the durable goods industries. If their profits decline sharply, then their purchases from the durable goods industries perforce must decline also. The problem of reviving the durable goods industries, thus, in large measure, resolves itself into one of increasing the profits of the industries which buy durable goods.

The railways, as has been shown in preceding articles in this issue, are normally one of the best customers the durable goods industries have. Their patronage has been pretty scanty in recent years because they have not had the profits to spend. But they want to increase their buying and they will increase it if they are given an opportunity to make some money. This is not an idle theory, but a demonstrable fact. It is shown graphically in chart A herewith. This chart outlines railway net operating income and railway purchases month by month for 1932, 1933 and the first seven months of 1934. Note, how, when the line showing net railway operating income —the technical accounting term for income after operating expenses and taxes have been paid—begins to rise, the lines showing railway purchases, a month or two later, also start upward. And, conversely, how, when net railway operating income begins to fall, purchases immediately thereafter tend downward.

Rise in Revenue Must Precede Purchases Expansion

The cause and effect relationship between net railway operating income and railway purchases (excluding fuel) during the past two and one-half years is clearly shown in the following table:

	Average Monthly Net Railway Operating Income (thousands)	Average Monthly Railway Purchases Excl. Fuel (thousands)
First Half of 1932	$18,270	$25,000
Second Half of 1932	36,100	19,600
First Half of 1933	25,800	18,000
Second Half of 1933	53,200	26,800
First Half of 1934	37,600	34,800

The average net railway operating income earned in the first six months of 1932 reached the low point for the depression. Note the result, as shown in the table, namely, that railway purchases were reduced in the *second* half of that year, offsetting the decline in profits suffered

The Public Interest in Railway Earnings

The railways always have spent liberally for equipment, materials and supplies when their profits gave them the funds, or the credit, to finance such expenditures.

Revival in earnings following severe retrenchment results not merely in a resumption of normal buying by the railways, but, for a time, in an *abnormally high* relationship of expenditures to income.

The railways are thus in a position now where increased income for them would make them buyers of durable goods entirely out of proportion to the expansion in their earnings.

With national recovery dependent upon revival in the durable goods industries, it is to the direct interest of every citizen that the necessary steps be taken to permit railway net operating income to increase.

in the first half. In the first half of 1933 purchases did not show the increase that might have been expected, because of the banking holiday and the absence of credit. By the second half of 1933, however, purchases were definitely on an upward trend. By the first half of 1934, stimulated by a further rise in profits in the second half of 1933, purchases were more than double what they were in the same period of the preceding year. Plainly the one infallible method of encouraging the railways to spend more money a few months hence is to enable them to make some money *now*.

Forty Millions Monthly Needed for Fixed Charges

The railways need some net railway operating income to pay interest on their indebtedness and for rent of leased lines. Ordinarily a company will not loosen up its purse strings to expand its purchases until the minimum profit needed to meet these unavoidable charges has been exceeded. Charges of this kind in 1933 totaled 691 millions. Not all this had to be met out of the net income from railway operations, however, since the railways had other income (mostly interest on investments) which totaled 211 millions, leaving 480 millions, or an average of approximately $40,000,000 a month, which net railway operating income must equal before fixed charges alone can be met.

The above figures are, of course, for the railways as a whole. When the profits of the railways as a whole decline almost to nothing, as they did in July, 1932, there are still some railways which earn more than enough to cover their fixed charges. Similarly, also, when net railway operating income for the roads as a whole is sufficient to cover fixed charges, there will still be a considerable number of individual companies which are falling short of meeting their own charges and which, therefore, cannot expand their purchases. Nevertheless, when the roads as a whole are earning more than enough to meet these charges, certainly a greater number of individual companies will have funds with which to expand their purchases than otherwise. In only one month of the current year—March—have profits been great enough to cover the monthly average needed for fixed charges. No sustained increase in railway buying can be looked for with such earnings as these.

Abnormal Expansion of Purchases Indicated When Earnings Revive

The close correlation of purchases with net railway operating income is not a new phenomenon. It has existed from the first. This is shown in Chart B, which shows total railway purchases and net railway operating income for each of the eleven years 1923-1933 inclusive. It is worth noting how, without exception, a tall structure of purchases always rests upon a deep foundation of net railway operating income, and how invariably a shrinkage in the latter brings a proportionate decrease in the former. The relatively heavy purchases in 1923 in proportion to income resulted as the aftermath of the shop strike in 1922.

The railways found themselves faced with a heavy accumulation of undermaintenance at a time when increasing traffic made it necessary to eliminate this undermaintenance, and, at the same time, provided revenues with which to do it. The result was abnormal expansion in purchases with reference to income. With maintenance work accumulated as it has in this depression, an upturn in traffic and revenues would unquestionably result in an expansion of purchases in even greater proportion to income than that which occurred in 1923.

Retrenchment Is Not Economy

The way the railways manage their business is not in any way different from that followed by other businesses, or by private individuals, for that matter. The private citizen whose income declines first begins by being more economical in his expenditures. He does not deny him-

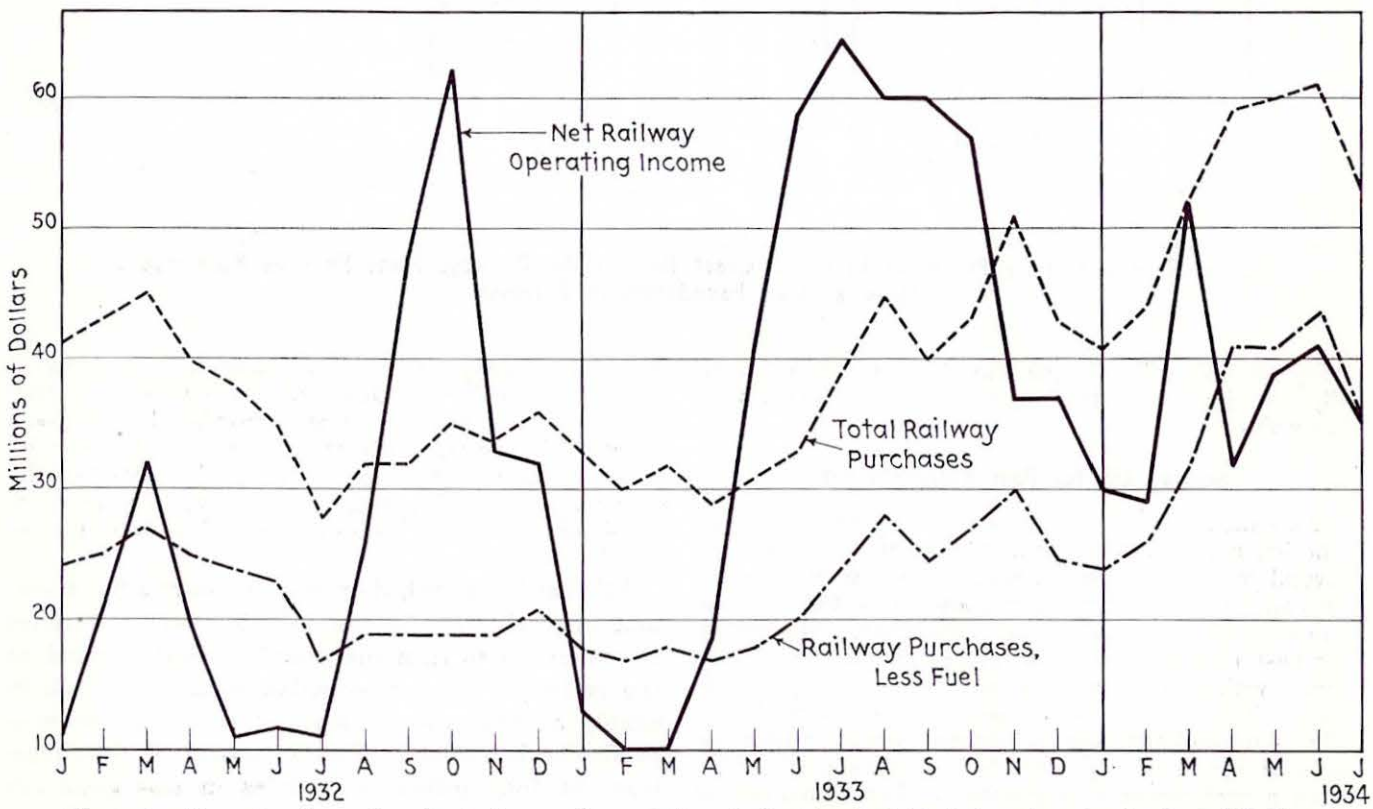


Chart A—How Purchases by the Railways Have Followed the Trend of Their Earnings in the Past 2½ Years

self or his family anything they really need, but he makes his expenditures with more care. There are some expenses which he has to make if he is to keep his household going.

He cannot avoid paying his taxes; he has to pay the grocer. If his income declines still further, mere economy is not sufficient. He begins to postpone expenditures, which in industry is known as retrenchment. Retrenchment does not save anything in the long run, but it curtails expenditure *now*. The impoverished householder wears his clothes until they become threadbare. He postpones the coat of paint his house needs badly. He puts off going to the dentist, even though he knows that the betterments, the amount of business which the railways stand ready to give the durable goods industries to offset these retrenchments alone would go a long way toward restoring normal activity and employment in many of them. But catching up on undermaintenance cannot begin for the railroads until they start to earn some profits, any more than the unemployed man can buy himself a new suit of clothes.

Larger Earnings a Certain Way, and the Only One, to Increase Purchases

The problem of the industries which sell their products to the railroads is thus a question of letting the railroads

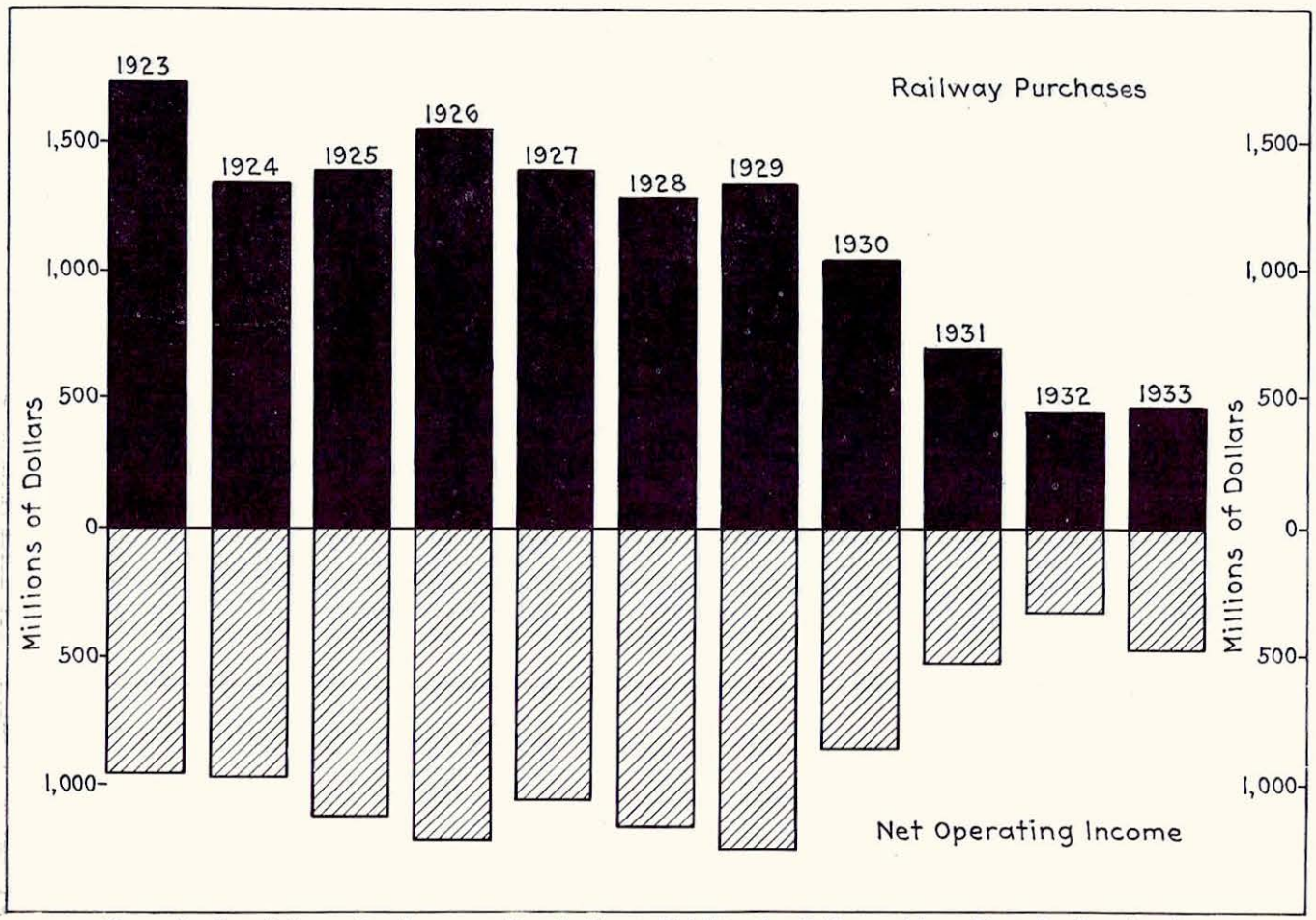


Chart B—For Railway Purchases to Reach Great Heights the Railways Must First Be Permitted to Have a Deep Foundation of Earnings

delay not only will not save him anything, but will actually cost him more in the long run. Still the dental work *can* wait.

Making Up for Past Retrenchment

Now the railroads are in much the position of the man who has not been to the dentist, or painted his house for several years. Give such a man an increase in his earnings and, for a good while to come, all of that increase will find its way quickly into circulation. Making up for past retrenchment alone makes him an active customer with every cent of money he can lay his hands upon. The railways are in that position exactly today. Their retrenchments—expenditures which cannot be avoided indefinitely but which have been postponed—reach a total conservatively estimated in the hundreds of millions. Without allowing anything for additions and earn some money. There is no more question of what the railways will do with the money if they get it than there would be about what an unemployed man would do with his first pay check after he gets a job. The demand by the railroads for durable goods exists to a degree unprecedented, perhaps, in history. The potential supply of such goods is also entirely adequate to the demand.

All that is needed, therefore, to start a huge volume of production by the durable goods industries is something to turn the now impotent demand of the railways into an effective demand—which is simply another way of saying: How may railway profits be increased? To the answer of that question the four following articles in this issue are devoted.

Increasing Railway
Net Earnings by—

EQUALIZING CARRIER COMPETITION

The railways are suffering a billion-dollar annual revenue loss to subsidized and unregulated competitors

FOREMOST among measures needed to restore the net earnings of the railways—and thus enable them to become active customers of the durable goods industries—are enactments by Congress and the state legislatures which will:

(1) Equalize the public regulation of rates, services, accounting and operating practices as between the railways, on the one hand, and their highway and waterway competitors on the other;

(2) Eliminate the subsidies now being provided for carriers by highway and waterway, thus making such transportation entirely self-supporting as the railways are; requiring them to pay, over and above the fees levied upon them for the use of public property, taxes proportionate to the magnitude of their business, thus defraying their fair share of the general expenses of government.

No Handicaps for Competitors Being Sought

There is no desire on the part of the railroads unfairly to handicap their competitors in any way. No contention regarding the regulation or taxation of these competitors is made by the railroads which is not supported by competent and disinterested observers in no way connected with the railways. The traffic diverted by these competitors, which has grown enormously in the past few years, does, however, account for a huge decline in railroad revenues. A part of this diversion is unquestionably attributable to the economy and convenience of the services they offer and would not be recovered by the railways even if special privilege in the form of subsidies and lack of regulation were removed. The railways are entirely reconciled to the loss of that part of the traffic which has been taken from them on a basis of real economy.

Nevertheless, the subsidies and the absence of regulation for the newer forms of transportation continue and, as long as they do, traffic will not divide itself among the various alternative methods of transportation solely on a basis of their relative economy and efficiency. Division on this basis alone can prevent extravagant waste of the national income. Traffic seeks the route—not necessarily of lowest total cost—but rather that of lowest price. If the agency of lowest true cost is to be chosen by shippers, then all the costs must be reflected in the prices charged. If, as happens in highway and waterway transportation, a large part of the cost is levied, not on the users of the transportation service, but upon the taxpayers, then the shippers may, and frequently do, choose such favored forms of transportation, when their total costs are higher than those of the railroads.

The importance of the competitive traffic losses of the railways is constantly belittled by spokesmen for the competitors. The allegation is made that the railways have gained more from the transportation of automotive equipment than they have lost by the use of this equipment for transportation purposes. Definitive figures of the volume of commercial traffic handled on the highways are not available, and will not be available until highway carriers are brought under comprehensive regulation. It is to be noted, however, that most of the freight traffic the railways enjoy because of the activity of the automotive industry would come to them anyway from the production and use of private automobiles and farm and delivery trucks. They would, thus, enjoy practically as much traffic as they do now from the automotive industry if there were no interurban bus or truck traffic at all.

Moreover, those who speak in glowing terms of the amount of traffic which the railways obtain from the automobile industry leave entirely out of account the offsetting losses which occurred when the motor displaced the horse. Feed for horses moved entirely by rail, whereas fuel for automotive vehicles moves largely by pipe line and tank truck. The horse-drawn vehicles were transported from the factory to the users entirely by rail, whereas automotive vehicles frequently move either under their own power or on "truckaways," so-called.

How Measure Extent of Traffic Loss?

The fairest gage of the loss of traffic to competing forms of transportation would appear to be a comparison of the level of industrial production over a period of years, and the trend of railway traffic over the same period. Such a measure of industrial production is provided in the monthly index numbers compiled by the Federal Reserve Board, which are based upon the average level of production in the years 1923-25, inclusive. Calling this average production 100 per cent, the

Federal Legislation Needed for Justice in Transportation

1. Regulation of all interstate for-hire motor carriers.
2. Regulation of water carriers.
3. Repeal of Fourth Section (Long-and-Short-Haul Clause) of Interstate Commerce Act.
4. Establishment of tolls on improved inland waterways sufficient to make them self-supporting.

Monarch Elevator Company

COUNTRY AND TERMINAL ELEVATORS

MINNEAPOLIS, MINN.

UNREGULATED TRUCKING INJURIOUS ALL AROUND

Our Company is naturally concerned about its investment in many elevators on branch railway lines where highway transportation has diverted so much of the traffic that the abandonment of the railway looms as a real danger. Our situation in each of these towns is not dissimilar to that of other property owners in these communities. In at least one respect it is even worse for the others - we would move out. Those who remained would confront the added handicap of paying substantially higher taxes for the support of their schools and local governments as the result of the loss of the railways' taxes.

We have found, too, as have many other shippers and receivers of freight, that unregulated trucking rates demoralize prices and markets. The orderly merchandising of farm produce and other commodities, either at wholesale or retail, requires that all producers and dealers pay the same transportation charges for the same service.

But what about the consumer; won't he have to pay higher prices for what he buys if highway transportation is regulated? I am not sure that he will. In the end the consumer generally pays all costs. He may enjoy a seeming, temporary advantage, but it is usually short-lived. On the other hand, regulation prevents competitive wastes, which probably more than offset in dollars and cents paid out by the consumer, any temporary benefits which may be passed along to him under unregulated transportation.

Our Company handles the farmers' grain on a very small margin of profit. This would not be possible if we did not know exactly what our transportation costs would be today and tomorrow. If there were any uncertainty as to what we might have to pay to move the grain, our margin would have to be greater to provide against that uncertainty. In states which still permit long truck trains, grain is being hauled long distances to market on a cut-throat rate basis. The farmer, in the long run, instead of gaining, will be worse off.

P. F. Schumacher

Traffic Manager

fluctuations in industrial production are shown in the accompanying chart down to and including the middle of the present year. Taking the revenue ton-miles of the railroads (as the best index of their total freight traffic) for the years 1923-25 as 100, these fluctuations are likewise plotted on this chart so that they may be compared with those in industrial production.

If the railroads were able to hold their own in competition for traffic, then the fluctuations in their business, shown in percentages, should coincide more or less closely with those in industrial production, shown similarly in percentages.

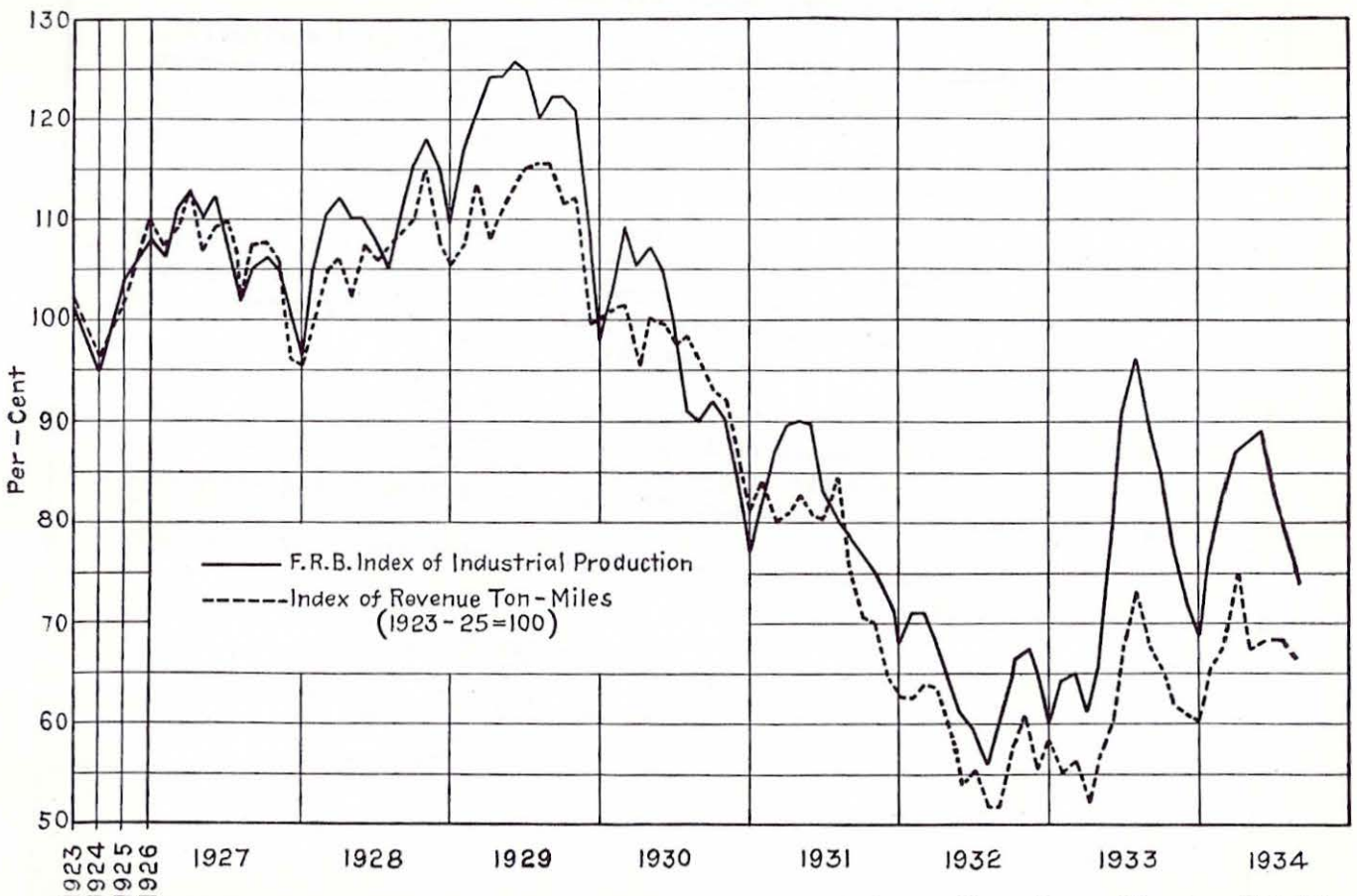
A glance at the chart indicates at once how seriously railway traffic has lagged behind. It tended to hold its own pretty well until 1927. Commercial traffic on the highways and waterways, of course, already accounted for a huge volume of traffic in those earlier years, but so great was the activity in road building and other incidental construction activities that the traffic resulting from them was great enough, up until 1927, to offset the rapidly growing carrying capacity of the newer forms of transportation. By 1928, however, as the chart clearly shows, the traffic diverted by the railways' competitors far out-distanced the tonnage which they helped create for them. It has out-distanced such tonnage ever since, and by a steadily increasing margin.

A Billion Dollars Lost Annually to Competitors

The railways in 1933 moved 249,779 million net ton-miles of revenue traffic. If railway business had shown in that year the same recovery that industrial production in general did (that is to say, a volume averaging 76 per cent of the 1923-25 level) freight traffic last year would have totaled 307,164 million revenue ton-miles (57,385 million ton-miles, approximately 23 per cent, more than it actually was). This volume of freight, even if it had been carried at the average rate of all railroad freight, which was 9.97 mills per ton-mile last year, would have produced $572,000,000 of revenue. Actually, however, it is a demonstrable fact that most of the business lost to railway competitors—particularly their highway competitors—is high-rated traffic bearing double or more the average rate. Consequently, the 57 billion ton-miles, presumably lost to competitors in 1933, represents a loss of well over one billion dollars in gross revenue to the railways.

Nobody can say with accuracy how much of this loss of one billion dollars was due to greater economy and convenience of competitive services and how much is ascribable to unequal conditions of competition, which are purely artificial. That a substantial part of the loss was due to these artificial advantages cannot be doubted; nor can anyone question the corollary that the removal of such inequalities would restore a substantial volume of traffic to the railways—traffic, incidentally, which they can handle at lower total costs than their competitors, thus keeping the proportion of the national income which is to be spent for transportation at a minimum.

The estimated loss of a billion dollars in annual revenue to competitors which the railways are sustaining right now as a result of competition, does not include losses in passenger traffic. In 1923 gross passenger revenues totaled 1,146 million dollars and in 1933 they had declined to 329 million, a loss of 71 per cent. Unquestionably most of this loss is attributable to the private automobile and can not be regained by the railroads by regulation of commercial carriers. Some of this business, however, is being handled by buses, the adequate regulation and taxation of which would make impossible some of the absurdly low rates now charged by some



How Railroad Freight Traffic Has Fallen Behind Industrial Production in Recent Years, Due to Diversion of Traffic to Subsidized Competitors

NORTHERN OHIO FOOD TERMINAL INCORPORATED

RUSSELL SWILER
Manager

CLEVELAND'S UNION PRODUCE MARKET

ORANGE AVENUE
E. 37TH to E. 40TH ST.
CLEVELAND, O.

UNREGULATED TRUCKING AND PRODUCE MARKETING

I have, as manager of this terminal market since June, 1929, attended hundreds of trade meetings and discussions, in which the demoralizing effects of the truck on the business represented in our market has come under discussion. Our market is the wholesale food center of Cleveland, being occupied by 115 firms, made up of wholesale fruit and vegetable merchants, wholesale poultry, butter and egg merchants, wholesale meat distributors, wholesale cash and carry grocers.

Of course trucking is entirely necessary to modern food distribution, but the present system of permitting contract trucking to run rampant without any semblance of regulation has forced the legitimate and established merchants into merchandising policies which are almost impossible to operate business successfully or with any control.

The present situation on the Cleveland market is such that those intervals in which a regular flow of agricultural products from producer to consumer to maintain a staple price, from which a satisfactory return can be made to a farmer producer, are so few and far between, that satisfaction to growers cannot possibly be given.

Operating under a common rate level, when a trucker starts out with a load, he will know where he is going and will not be able, without getting in touch with his shippers, to proceed to other markets, shopping the markets as he goes and with his load deteriorating every mile.

We favor the regulation of for-hire trucking with the Interstate Commerce Commission.

Very truly yours,

Russell Swiler

RUSSELL SWILER
Manager

RS:AB

passenger carriers on the highways, particularly the smaller and less responsible operators.

There is no regulation whatsoever of interstate commercial carriers on the highways and waterways. Rates are made to suit the immediate selfish advantage of the carrier and shipper involved, with no concern for the national interest, nor even the long-run selfish interest of either shippers or carriers as a class. Obviously the railways cannot compete with such carriers on a basis of anything approximating equality while they are restricted to schedules or rates in which the national interest is given primary consideration and in which the immediate selfish advantage of neither the shipper nor carrier is given any weight.

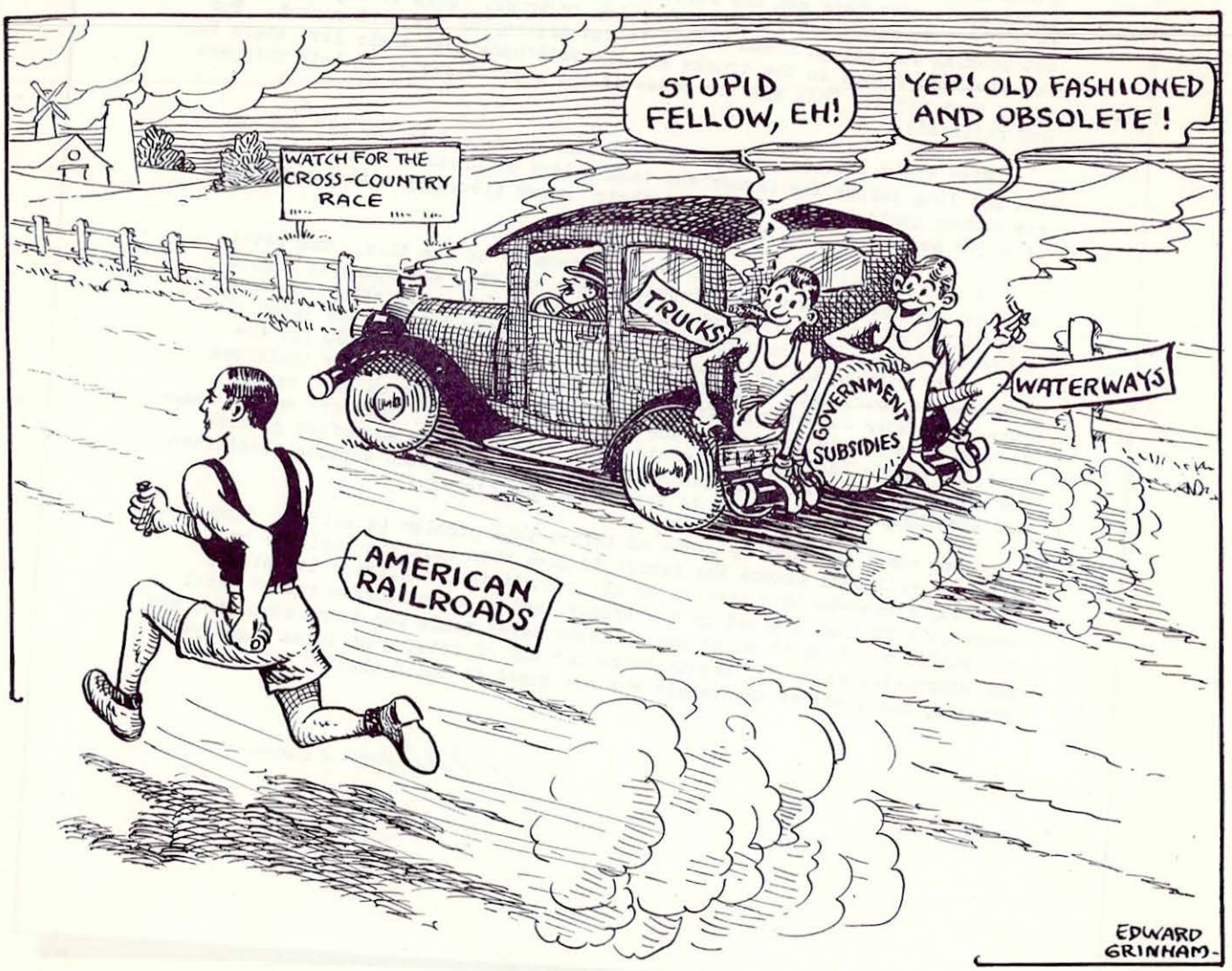
Injustice of the Long-and-Short-Haul Clause

Similarly, the railways are prevented by the provisions of the Fourth Section of the Interstate Commerce Act and its interpretation by the Interstate Commerce Commission, from making lower rates for a longer haul, where competition exists, than they are willing to make proportionately for shorter hauls where competition does not exist. The principal victims of this restriction are the railways which connect the Middle West with the Pacific Coast. The Pacific Coast cities enjoy low rates to the Atlantic seaboard via the Panama Canal in intercoastal shipping which enjoys many favors at the expense of the taxpayers. The railways are not permitted to make low through rates to the coast to compete with these ship lines unless they will make proportionate reductions to intervening territory which the ship lines cannot serve. This the railways cannot afford to do.

The prohibition of purely arbitrary sectional discrimination in transportation rates is just. However, because of the water transportation available, the rate discrimination between the Pacific Coast and the inland territory to the eastward exists despite anything the railways have done or can do. The Fourth Section of the Interstate Commerce Act, preventing the railways from meeting this competition, does not prevent discrimination, nor would the repeal of this Section give rise to any discrimination which does not already exist. As a matter of fact, if the Fourth Section of the Interstate Commerce Act were repealed so that the railroads were permitted to make lower rates to the Pacific Coast to meet the competition of intercoastal shipping, the intervening terriory between the Pacific Coast and the Middle West would actually benefit considerably, since the return of some of this traffic to the railroads would cause the operation of more trains through the territory, giving rise to increased employment, increased payrolls and increased railway buying of materials, supplies and fuel.

How Achieve Equality in Regulation?

Equality of regulation of transportation in the public interest requires the enactment of the following federal legislation:



The Hitch Hikers

J. H. DAVIDSON, M. D.
GILLIAM, MO.

A COUNTRY DOCTOR'S VIEW OF TRANSPORTATION

Having practiced medicine for thirty-eight years in an agricultural community within a few miles of a division point on a mid-western railroad, perhaps I can qualify as a neutral observer of the condition that confronts the farmers and stockmen and the railroads today.

During the prosperous years from 1900 to 1920 the railroads employed two million men at good wages. They lived well and the wages they earned went to buy the products of the farm and everything else that goes into the American home. They built homes, furnishing a market for the products of the building industry and they met the payments on these homes promptly, thereby furnishing a safe place for the investment of capital.

Everybody prospered. But conditions were changing: The automobile came and with it the demand for paved roads. Then came the trucks, and the railroads did not see at first what they were going to do to freight traffic. The paved roads were here and the live stock industry was the first to see that it could save money and labor by shipping by truck. This it began to do without looking far enough ahead to see it was destroying its best market. But the stockmen turned to the trucks and the railroads lost their live stock business over night. This was the cause of the major disaster to both shippers and railroads.

With their business gone, the railroads commenced to lay off men and it was not long before the farmer who took a load of produce to town found that his former customers who had spent their money liberally with him were out of a job and out of the market.

I do not have to go out of my own community to see this. The cattle and hog business is the major industry here and this was formerly a good shipping point on the railroad for live stock. Now every shipper here is using the truck. Do the men who operate the trucks take up the labor that lost their jobs on the railroads? No! Truck drivers get $2.50 for the twenty-hour round trip to St.Louis (180 miles each way) and pay their own expenses. They cannot buy sirloin steaks and pork chops on such wages, so they do not help to consume the shippers' products. They are on the roads that the public has paid for twenty hours without sleep and often go back for a second trip with only two hours' rest. Under such working conditions can they help being a menace to traffic on the highways?

Two questions must be answered before this problem is solved. They are: Will the railroads induce the farmer to give them back his business by offering a door-to-door service on all commodities, including livestock, comparable to that offered by the trucks, and at commensurate rates? Will the public continue to build and maintain paved roads for truck companies who pay starvation wages for twenty hours per day of driving on these highways, menacing the lives of the people who are taxed to build them?

J H Davidson

1. Regulation of interstate commercial motor carriers of passenger and freight (as embodied in the Dill-Eastman bill submitted to the last Congress).

2. Regulation of motor carriers (as introduced in the last Congress by Senator Dill at the request of Co-ordinator Eastman).

3. Repeal of the Fourth Section of the Interstate Commerce Act (as introduced in the last Congress by Representative Pettengill of Indiana).

The first two measures received strong endorsement by the Interstate Commerce Commission, which also favors modification of the Fourth Section of the Interstate Commerce Act. These measures, it is clear, therefore, are not sponsored by the railroads in their selfish interest, but instead are supported by responsible authorities whose sole concern is the public interest. They are in line with the conclusions reached on this question by every responsible and impartial student who has given any attention to it. Truck, bus and waterway regulation is endorsed by the Chamber of Commerce of the United States. The regulation of highway carriers and the repeal of the Fourth Section are supported by the National Industrial Traffic League.

Briefly, the regulatory measures would require a showing of "convenience and necessity" to the Interstate Commerce Commission for proposed highway and waterway common or contract carrier operations, similar to the showing which must now be made before a new railroad transportation enterprise can be undertaken. The proposed measures would likewise provide for control of rates, accounting and operating practices, with other provisions for the protection of the public interest of the same general character as, but in less detail than, the provisions of the present federal laws dealing with the railroads.

Similar regulatory legislation is needed in the states in order that purely intrastate operations by the railways' competitors be regulated in the same way that railway operations are controlled. As a matter of fact, many states have already enacted such legislation governing intrastate highway operations, but this legislation, to be really effective, must be general.

Waterway Subsidies Federal, Highway Subsidies Largely State and Local

The matter of subsidies to water transportation is almost entirely a federal matter, whereas subsidies to highway carriers are almost exclusively a state question (except insofar as federal aid for highway construction is involved). The discrimination by subsidies in favor of water transportation is far greater in degree, but not in total magnitude, than that vouchsafed to highway transportation. Truck and bus operators do pay *something* for the privilege of using the highways provided for them by the generosity of the taxpayers. By contrast, the waterways which the federal government has constructed, and is rapidly extending, are turned over to the water carriers entirely free of charge. They pay nothing toward the initial cost of dredging, dams, and such works. They pay nothing toward the maintenance of channels. If locks are provided, then it is the taxpayers, and not the users of the waterways, that bear the expense of operating them. Naturally, being relieved by the taxpayers of such a large proportion of the costs of waterway transportation service, the operators are able to make artificially low prices and attract traffic which on the basis of true economy should be handled by rail.

This inequity and waste can be ended only by the levying of tolls on all improved waterways sufficient to reimburse the federal government for the capital and maintenance outlays which it makes upon them.

The exact determination of the subsidies enjoyed by commercial users of the highways, which must be eliminated before the railways can compete with them on terms of true economy in the public interest, is more complex. Unlike their waterway contemporaries, commercial highway users do pay something, in license fees and levies on motor fuel, toward maintaining the highways over which they operate. That these fees, generally speaking, are entirely incommensurate with the costs of the facilities they use, goes almost without saying. The sum total of all payments by highway users, including private automobiles, covers only about one billion of the more than two billion dollars which are being expended annually on our highways and arterial city streets. Commercial users generally pay less in proportion to their ton-mileage use of the highways than do private motorists. Hence it follows, if highway users as a whole are failing by more than half to meet the annual highway bill, that commercial users are certainly failing by not less than that proportion to pay adequately for the facilities they use.

State Legislation Which Will Equalize Transport Competition

1. Regulation of all for-hire carriers on the highways.

2. Increased fees for commercial use of the highways to avoid burdening taxpayers and motorists with any part of the costs properly assignable to commercial users.

3. Taxation of commercial motor transportation, over and above all road use fees, in the same proportion of its gross revenues that railway taxes bear to railway revenues.

4. Preservation of states' rights in their police power over the size and weight of commercial motor vehicles permitted on the highways—each state determining its policy with due regard to the probability that fees levied on heavier vehicles, if they are permitted, will reimburse it fully for the additional road expense made necessary to accommodate them.

Political Methods Applied to a Problem in Engineering and Economics

There is some difference of opinion as to the proportion of highway costs properly assignable to vehicles of different weights, with those friendly to heavy truck operations endeavoring to secure a decision by restoring to political pressure rather than to unprejudiced engineering research. One contention made by these partisans, which is absurd on its face, is that a thickness of pavement needed for the lightest passenger automobile will stand up equally as well under the pounding of a truck having a weight, with load, of 9 tons per axle. Competent and unbiased engineering judgment, of course, completely refutes such statements, conservative opinion apparently agreeing that road costs made necessary to accommodate vehicles weighing, with load, in excess of 2½ tons, are from 40 to 50 per cent higher than they would otherwise be. In all fairness, therefore, the

upon a revival of the durable goods industries. These industries, relying as they do to such a large extent upon railway purchases for a normal volume of activity, can not hope to achieve such a level of activity without normal buying by the railroads. The railroads, in turn, can not increase their purchases until they first have net earnings at least sufficient to cover their fixed charges, in order to provide themselves with funds for increasing their purchases. With wages and prices of materials on the upgrade, there is no source from which such an increase in railway earnings can come within the next few months in sufficient volume to revive railway purchases except from the relatively small increase in freight rates which the railways are seeking. These are the irrefutable facts. The increase in railway freight rates is one of the essentials of a real beginning in national recovery.

Railroads at Basic Disadvantage

The situation with regard to the proposed increase in freight rates was ably stated by Milton W. Harrison, president of the Security Owners Association, at the hearings before the Interstate Commerce Commission on this proposal. Shippers, he urged, should not "overlook or ignore the fact that the same fundamental principles applicable to their own businesses must be adhered to if the railroads are to maintain adequate service and a sound financial position. There is a point beyond which railroads cannot go in absorbing economic or competitive losses of industries or localities.

"To say that the roads should not seek rate increases or take such other steps as they deem necessary to meet essential financial needs because other forms of transportation, either subsidized by government or left unregulated by it, may take business away from them, is merely begging the issue. In comparison with other forms of transportation the railroads have been placed at a basic disadvantage.

"We hear much of purchasing power and its importance, but to the present time discussion has been chiefly limited, so far as the railroads are concerned, to the wages of railroad labor. The important part which the railroads ordinarily play in stimulating employment in other industries—particularly the heavy industries which today are responsible for the major part of our unemployed—is to a large extent lost sight of.

"The importance to national recovery of stimulated employment in the capital goods, or 'heavy' industries is generally recognized. The federal administration has sought to meet the problem by wide-spread public works expenditures. Normally the railroads are among the most important customers of these industries. If, by virtue of reduced revenues railroads are forced further to contract their expenditures for materials and supplies, a severe handicap will be imposed upon recovery.

"Not only is the purchasing power derived normally from railroad securities an important factor in our national purchasing power, but upon it largely depends the welfare of unknown numbers of individual and dependent families.

"Investors neither have nor advocate a narrow view of the situation. They neither seek nor wish undue preference or advantage or any action which may mean injustice to any other interest concerned. To them the essential unity of the interests of the various parties concerned with the railroads is evident. They do not wish to see railroad workers deprived of any advantage, which sound economic principles can support. They do not wish to see shippers lose any reasonable advantage. Many investors believe, however, that a sound equilibrium as between the major interests concerned in the railroad situation has disappeared, and that patient, disinterested, and prompt effort will be necessary to restore it. These proceedings represent one of the steps necessary to that end."

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THE SOLAR COAL COMPANY
FUEL SATISFACTION
Chillicothe Street & Argonne Road
PHONE 320
PORTSMOUTH OHIO

PHILIP L. HUMMEL
President & Manager

UNREGULATED TRUCKING RUINOUS TO COAL TRADE

The vicious results of unregulated trucking are particularly noticeable in the distribution of inferior quality coal in the State of Ohio.

Our experience has shown that men with idle trucks, or with a few dollars necessary to purchase a second-hand machine, are visiting wagon mines, buying a load of coal, trucking it from 3 to 300 miles distant, and there selling the load for whatever he can get over and above the purchase price. In most cases carrying as much as five tons of coal in a single light truck, in utter disregard to all rules of safety, such unregulated "wild-cat" truckers are not interested in costs of operation, or in the effect of their activities on established producers, dealers and carriers. Their only purpose is to buy a load of coal as cheaply as possible and sell it for a small profit, if any.

Established retail dealers yard their coal before delivery to the consumer. They also have overhead expenses in maintenance of facilities, taxes and satisfactory wages to their employees. The trucker of "bootleg" coal does not have such expenses of a legitimate business and are able to undersell the local dealers. The trucker who sells coal is in most instances a peddler or migratory operator, either soliciting orders before buying the coal or bringing the coal into town and peddling it from house to house or from street corners. The customer has no assurance of correct weights. Prices are not fixed, and in direct disregard to NRA Code requirements, the trucker obtains what he can from the individual customer and the transportation cost is only an element in the entire transaction.

The unstable and irresponsible nature of the trucking operations is proving ruinous to the coal trade. Our position is positive that the commercial truck operator must be placed under adequate supervision for the preservation of business stability.

THE SOLAR COAL COMPANY

Philip L. Hummel
President and Manager.

heavier vehicles should be assessed to cover this 40 or 50 per cent extra cost, in addition to their proportionate share of the cost of the basic road as used by vehicles of all weights and sizes. Allocating road costs to vehicles of different weight in accordance with a formula developed by Charles F. Marvin, Jr., engineer of the United States Bureau of Standards, a calculation has been made which shows that in the state of Kansas a truck of 5 tons' capacity should pay a minimum of $3000 per annum in gasoline and license fees in order to bear its proportionate share of highway expenditures in that state.

Road Use Fees Are Not Taxes

Levies for the use of the roads, moreover, should not be confused with taxes in the ordinary sense of the word, but should be recognized for what they are, namely, rental payments for the use of public property as a place of business. Over and above such rental payments, excise or gross income taxes should be levied on commercial motor transportation so that 8.1 cents out of every dollar paid by patrons of highway carriers will go toward meeting the general expenses of government, so long as a similar contribution is required toward this purpose from railroad patrons.

In any event, the levies on vehicles of different weights is one which should vary from state to state as the registration of such vehicles and the expenditures upon highways to accommodate them, varies. Some states may have traffic sufficiently heavy to warrant the construction of roads for heavy vehicles, with the assurance that levies necessary to cover these added costs would not be prohibitory. On the other hand, other states with light traffic would find it impossible to build roads to accommodate heavier vehicles without placing an unjustifiable burden upon other highway users and the general taxpayers.

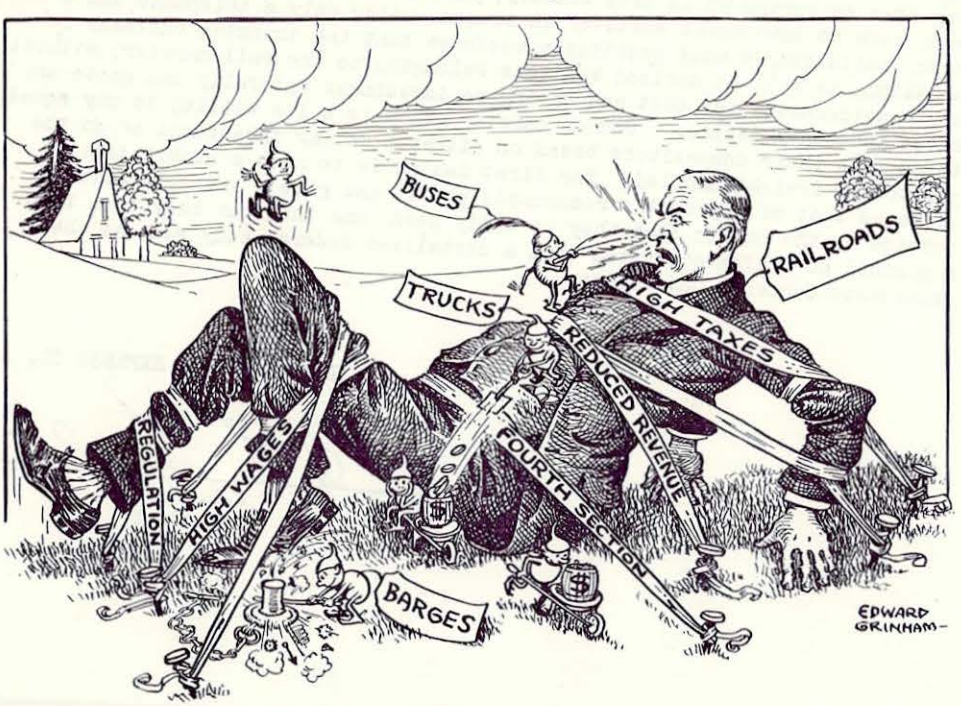
State Sovereignty Threatened

The question is not one which can be settled upon a uniform national basis as long as the density of traffic varies so greatly from state to state, as it does, and as long as highway expenditures by the various states are not uniform. National uniformity as to license fees and weight restrictions on heavy vehicles can be achieved only at the expense of complete loss of control by the state governments of expenditures for what has become, from a dollars and cents standpoint, the most important function which the state governments exercise. If uniformity in the sizes, weights and fees of commercial motor vehicles is achieved, and bankruptcy of thinly populated states is to be avoided, then uniformity would compel much more severe restrictions of sizes and weights and much higher fees than those which now prevail in many of the states. Uniformity on this basis would unduly restrict the states which have heavy traffic and the money to spend in providing highways suitable to accommodate it.

Alert state governments recognize the necessity for the maintenance of their sovereignty and their police power over highways; and the important relationship which this power bears to the maintenance of their financial integrity. No findings as to the extent of subsidies enjoyed by operators of commercial highway vehicles can be laid down on a national basis. The amount of these subsidies varies from state to state, and the states alone can remove them by a study of road costs properly assignable to each weight of vehicles. Such studies, of course, can be relied on only when they are the result of impartial engineering and economic analysis and are kept free from political pressure by interested parties. The partisans are entitled to a day in court, but they should not be allowed to write the decision for the judge.

Durable Goods Recovery Awaits the Outcome

Given fair regulation of their competitors and a resolute attack on the more complex problem of removing subsidies from them, the railways will unquestionably regain at least a share of the traffic they have lost. Since the total loss is over one billion dollars per annum, even a small share would amount to a considerable sum. Such equalization of competition is one of the steps, and probably the most important step, by which net railway operating income can be increased, bringing a revival of railway purchases and recovery to the durable goods industry.



A Modern Gulliver

KEESHIN MOTOR EXPRESS CO.
INCORPORATED
MOTOR FREIGHT TRANSPORTATION
ALL SHIPMENTS COVERED BY INSURANCE
EXECUTIVE OFFICE
1453 WASHBURNE AVE.
GENERAL OFFICE AND WAREHOUSE: 300 N. CANAL ST.
PHONE DEARBORN 9200
CHICAGO, ILL.

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STERLING, ILL.	MAIN 30
DAVENPORT, IOWA	WALNUT 3486
ROCKFORD, ILL.	FOREST 5757
PEORIA, ILL.	6149
SOUTH BEND, IND.	3-8434
FORT WAYNE, IND.	A-4191
MICHIGAN CITY, IND.	415
INDIANAPOLIS, IND.	LINCOLN 2578
DEKALB, ILL.	MAIN 163

REGULATION WOULD BENEFIT TRUCK TRANSPORTATION

With the approach of the new Congress the question of Regulation for the motor truck industry will again come to the front, and there certainly can be no question but that immediate Federal Regulation will be necessary to bring about some order in the transportation picture. There is a question in my mind as to what support will be furnished by the rail carriers of the United States to assist in bringing about this badly needed regulation, which is as of vital importance to them as it is to the motor truck industry. The larger common carrier operators, such as our company, sincerely feel that there must be concerted action to secure the kind of Federal Regulation that will be most beneficial, and that will result in a truly co-ordinated, well balanced transportation picture, feeling that only thru regulation by a single agency, such as the Interstate Commerce Commission, of all forms of transportation will this be brought about.

The writer and many of the larger common carrier operators are fully in accord with Co-ordinator of Transportation Eastman's recommendations as to legislation of the kind recommended by him, and have no fear of the final result at the hands of the Interstate Commerce Commission. The most serious question today before the larger common carrier operators is that their business is being gradually reduced by the worst type of racketeering ever to spring up in this country, namely, wildcat or broker operators who, with no investment whatever in trucks, using only a telephone and a desk, soliciting a most profitable business that the trucking business is handling, as well as carload business belonging to the rail carrier, without any consideration for cost and having no investment naturally can quote any rates that they desire. Common carrier group is quite willing to pay equal taxes with their competitors based on either a dollar investment or on the per ton of freight handled. The first desire is to have a stablilization of rates that will permit a reasonable profit and give a transportation service to the public that they so badly need, and this can only come thru a planned co-ordinated system thru a centalized federal body such as the Interstate Commerce Commission.

KEESHIN MOTOR EXPRESS CO.

J. L. Keeshin

J.L. Keeshin
President

Increasing Railway
Net Earnings by —

A MODERATE INCREASE IN RATES

Restoration of 1929 wage level, higher prices under NRA and traffic decline must be offset to maintain purchasing power

THE volume of purchases by the railways, as previous articles in this issue have shown, is determined by the net railway operating income the railways earn. In 1932 net railway operating income declined to $326,298,008 and, in 1933 as a result the railways spent only $234,500,000 with manufacturers. In 1933, however, net railway operating income rose to $474,295,613. So, this year, on the strength of the larger earnings of last year, railway purchases have been increased so that, for the year, they will total, probably, $625,000,000, or 160 per cent greater than last year.

But the prospects for the immediate future are much less encouraging. Since July railway traffic has been running lower than it did last year. Moreover, the 1929 scale of wages is being restored by installments. The NRA codes have brought increased costs for the materials and supplies the railways buy. In fact, higher wages and higher prices alone—leaving decreased traffic out of account—will increase railway expenses almost $300,000,000 a year. The effect that this will have upon net railway operating income—and railway purchases—unless something is done to offset it, at least in part, is obvious. If railway purchases are to be increased—indeed, if the present level of buying is to be maintained—something must be done and done quickly to restore net railway operating income to what it would have been had these increases in expenses and the decline in traffic not occurred.

National Interest at Stake

One means by which railway earnings can be improved—the termination of special privileges now accorded to their competitors—has already been discussed. It is impossible to determine, however, exactly how much revenue such action would bring to the railroads, because it is not known how thorough-going the withdrawal of these privileges will be. In any event, the increase in railway earnings from such action cannot come quickly enough to enable them to overcome their immediate difficulties. Some other means of securing a quick increase in railway earnings is necessary, and the only one immediately available is an increase in railway rates, as provided for in the case now pending before the Interstate Commerce Commission.

The proposed increase is not a large one, only seven percent on the average, and is calculated to yield some 170 million dollars annually in added revenues, which is a very modest sum when compared with the 300 million dollar increase in railway expenses which has been brought about by the increase in prices under the NRA codes and the restoration of the 1929 level of wages.

Some shippers have objected to this increase in railway rates. The question they should ask themselves is this: Would it be better for business to pay a slight increase in rates and thereby assure an increase in railway purchases from industry and avoid wholesale defaults or, on the other hand, can business better afford to save itself this slight increase in freight rates at the expense of a further decline in railway orders and the depressing effect on general business which would result from further railroad bankruptcies?

The railroads are not asking a fair return on their investment, to which they are entitled under the law. All they are seeking is to recoup themselves in part for the added expenses which have been put upon them by increased costs of materials and increased wages.

The proposed increase in freight rates should be only a temporary measure. If the shippers who object to the increase in rates will see to it that a really thorough-going job is done in regulating and removing the subsidies from railway competitors, the increase in freight rates may be needed only a comparatively short time. Indeed, if all railway patrons had been alert to the damage done to the railways—and indirectly to the patrons themselves—by the inroads of subsidized competition, and had resolutely demanded a halt of these subsidies before they had reached such enormous proportions, the situation never would have become as desperate as it has become, nor would an increase in rates be necessary.

In any event, national economic recovery depends

Profits Necessary to Private Ownership

I am more concerned at the moment with the relation of the shipper to the entire transportation problem. Individual interests cannot wholly be disregarded, but there never was a time when it was more important to consider transportation from a less selfish point of view and with regard to the best interests of the entire country. As a matter of fact, enlightened selfishness will dictate precisely that approach to the problem. Apparently the business men of the country want the railroads, and in fact all transportation agencies, to be privately owned and operated; but if they do, they must realize that private enterprise and profit go hand in hand, and that it is impossible in the long run for privately-owned transportation agencies to be successfully operated and give good service unless they enjoy a very fair degree of prosperity.

From an Address by Hon. Joseph B. Eastman before the Chicago Association of Commerce

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Net Earnings by—

NEW SERVICES TO MEET COMPETITION

Despite handicaps, railways are making great strides in meeting competition by vast improvements in service

THIS year has witnessed the beginning of a revolution in railway operations, a revolution that, in addition to meeting competition, will react greatly to the public welfare. This article will deal with this revolution, together with the enormous potentialities for railway purchases for this purpose, if the railways can secure the necessary funds. Forecasts of this revolution were provided by the non-stop run of the Burlington Zephyr in May from Denver, Colo., to Chicago, a distance of 1,015 miles in 13 hr. 5 min. (or half the time required by the fastest present scheduled trains between these cities) and the transcontinental run of the Union Pacific M-10001 in October from Los Angeles to New York, 3,258 miles in 56 hr. 55 min., which cut 20 hr. or almost a day from the present schedules between Los Angeles, Cal., and Chicago.

Faced with the menace of many varieties of unregulated, subsidized competition, the railways, despite the low ebb of their revenues, have been making serious and well-planned efforts to meet such competition by improved service and by spending money for new equipment, much of which is quite revolutionary in design. But most of these efforts, and particularly the two named, have been made by roads in exceptionally good financial condition. Even the more fortunate railways have been able to make only a beginning of what they would like to do, while most of them, through lack of funds, have not been able to do anything at all. Beginnings have been made, but only beginnings. The revolution in rail transportation, with its attendant enormous purchases, has just started; the rapidity with which it spreads is dependent largely upon increased railway revenues.

The old axiom that a railway must constantly spend money to keep ahead of the times is well known to railway officers. Moreover, they have shown ample evidence in the past of their willingness to follow its dictates by spending money for new facilities and new methods to bring about increases in their net railway operating income. The stupendous sums spent by the railways for improved facilities during the decade ending with the year 1929, during which period many lines were practically rebuilt to take care of the then-existing transportation demands and to improve operating efficiency, supply ample corroboration of this attitude.

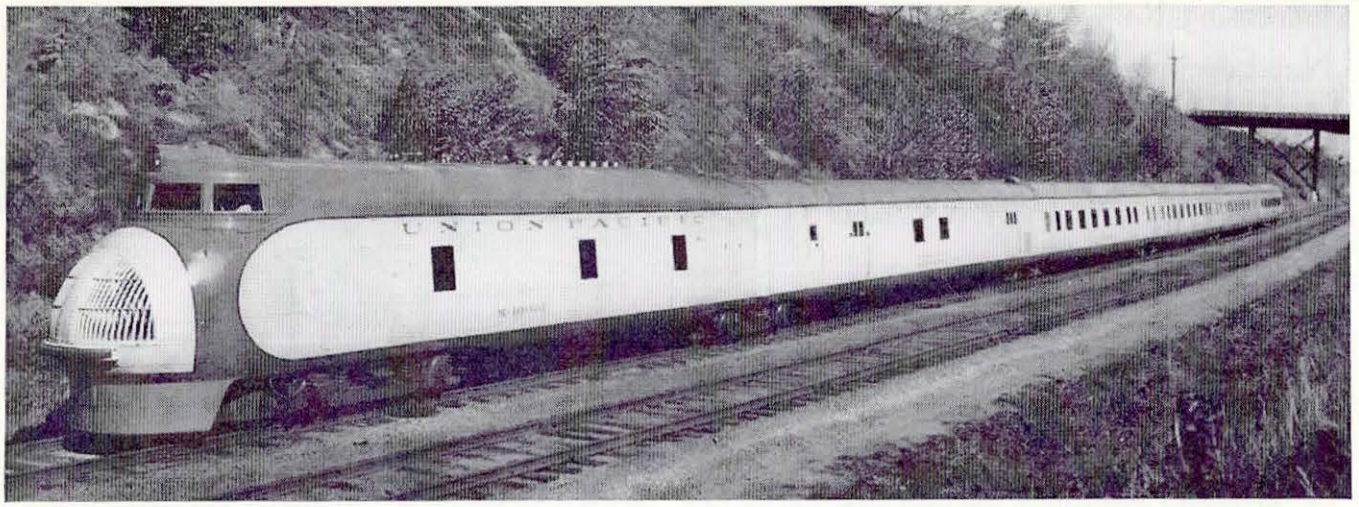
Despite their recognition of this basic principle of any business, which is perhaps true more particularly of the railway business than any other, despite their eagerness to adopt new means of improving rail transportation, railway managements are faced with the unwelcome but none-the-less pertinent fact that, today, they simply haven't the money to spend, regardless of what ultimate dividends might result from its spending. That they have done as well as they have in keeping up and improving railway service is a remarkable tribute to railway management, and it supplies a significant indication of the large expenditures to meet competition that will be made as soon as more funds are available.

Service Improvements

There is a new spirit among traffic officers, and they are being backed to the fullest extent possible by their operating, engineering and mechanical colleagues. Much money is being spent and much more will be spent in meeting competition. The new high-speed trains represent a direct challenge to airplane competition. In capitalizing on comfort, their prime advantage over other means of passenger travel, the railways have made great strides in air-conditioning, better seating, roller bearings, easier riding trucks and general attractiveness of railway passenger equipment. All these things require expenditures and such expenditures have been made, but in only a fraction of the amount that would be spent if funds were available.

Freight trains, too, have been accelerated, with plans being announced almost daily for further acceleration. Many railways have demonstrated that overnight service is quite possible for distances up to 500 miles, and the limit has by no means been reached. Furthermore, in the past year it has been demonstrated that store-door delivery of carload traffic, in cases where consignees do not have siding facilities, is by no means impossible. The store-door service now provided

One of the outstanding features of the depression years, and particularly the past two years, is the determined manner in which the railways and railway supply manufacturers have gone ahead, in face of every discouragement, with developments of means to meet competition. It is not too much to say that a complete revolution in railway transportation has begun. Each week, the columns of the *Railway Age* carry reports of new phases of this movement to meet competition. The most startling, attention-compelling factor has been the streamlined trains, but there have been other developments quite as revolutionary. This is but a beginning. What they have done with their present curtailed revenues is as nothing to what they will do with more money at their disposal.



Many Streamlined Trains Have Been Purchased to Win Back Passengers

on new automobiles from Janesville, Wis., to Chicago and to the Twin Cities has demonstrated the feasibility of such services conclusively, and has proved most profitable. The two railroads involved in the Chicago deliveries handled none of this traffic for two years. It was, apparently, irretrievably lost to highway competitors; yet, since April of this year, the number of carloads handled has passed 2,000 and still continues to increase.

The figures on traffic recovery as a result of storedoor service, published from time to time in the *Railway Age*, are revealing and informative, and explain why this type of service is increasing.

An Experimental Laboratory

But this is by no means all. Even under present conditions, the railways are a vast experimental laboratory as to the possibilities of high speed in both passenger and freight trains. The development during the current year of the new, streamlined passenger trains, both Diesel and steam-powered, has been remarkable, and this bids fair to continue in the coming year, as more such trains now under construction are delivered. Almost every week sees announcements of new and more startling schedules, and the record runs made this year show the extent to which this experimentation is being conducted, and the nearness of a practical solution.

None-the-less, all this is but a beginning. It is, in a sense, merely an indication of what the railways can do along these lines, and, with the present uncertainties removed and with money for research available, the eventual results of such experiments, translated into practical railway operations, are unpredictable. One prediction, however, can be made fairly safely, and that is that rail passenger transportation will be completely revolutionized in many respects.

The problem of increased comfort for rail passengers is also not being overlooked. The march of progress in the air-conditioning of passenger trains continues unabated, but at nowhere near the rapid rate that it would assume if the railways were able to spend money to make money.

Passenger Train Improvements

Given adequate revenues, considerable impetus would be added to the purchases of the newer designs of trains. Millions of people have been viewing the streamlined trains this year, and, as a result of this and the startlingly successful high-speed, long-distance runs the trains have made, public interest and attention have been directed to railway passenger transportation in a manner never before equalled.

The first of these new trains to be put in actual operation made its first regular run on November 11 of this year. Meanwhile, eight railroads have placed orders for 13 of these trains, costing an average of $200,000 each, with prospects of other orders soon. Orders already placed total about $3,000,000.

At the same time, air-conditioning of passenger cars, practically unknown three years ago, is now almost universal on through trains in the East, while there are more than 500 air-conditioned cars operating in western territory at present. Furthermore, just a month ago it was officially announced by the executives of the western roads that all of their transcontinental trains and practically every other major train would be air-conditioned throughout before the passenger season of next summer. Some idea of the cost of this may be gained from the fact that one large western railroad has alone appropriated $1,700,000 for this purpose. The project of the Western lines involves the air-conditioning of more than 1,200 cars, including 700 Pullmans and 500 units of railroad-owned equipment, which, with those already in service, will constitute a fleet of more than 1,700 air-conditioned cars operating in western territory.

Railways Not Dismayed

These developments are indicative of means by which the railways can spend money to meet competition, and they indicate, too, that the revolution in railway transportation is well under way. These beginnings are playing an important part in the progress of national recovery. How much more important a part they would play if transportation competition were equalized, if some definite and well thought out railway program were inaugurated and carried through, can only be conjectured. It may safely be said, however, that the railways' contribution to national recovery along these lines would be tremendous. Every disposition is being shown by railway managements to expedite it. The railways, insofar as they are able, have been the leaders in the last few years in adopting new improvements and promoting their development in conjunction with the railway supply manufacturer, even during the time when they have been in the worst financial condition in their history.

The object in view in all this, of course, is to make rail transportation more attractive to the public, to meet competitive conditions, and to increase passenger revenues. It has, however, other angles that are extremely

important to national recovery, because, in the development of these high-speed trains, large sums of money have been spent. These expenditures find their way into the durable goods industry and result in increased employment in many industries.

Freight Trains Accelerated

High-speed freight transportation, while somewhat less spectacular, so far as the layman is concerned, has not been lagging behind in this general program of service improvement that is being carried on courageously despite almost every conceivable handicap. These high speed freight trains not only provide a service that would have been adjudged impossible only a few years ago, but they require the spending of money to make money. Manufacturers of freight car equipment are already developing new devices to adapt freight cars for this high-speed service. The adoption of these improvements will involve a large investment for even present traffic, and when rail traffic has been restored to its normal basis the railways will require the expenditure of still larger sums. Furthermore, with the present light traffic, it is possible to operate these trains with relatively small expenditures for additional facilities. The present remarkable record of the railways in the production of gross ton-miles per train hour, however, is by no means a criterion of what can be accomplished—with present facilities—when traffic returns to the volume that prevailed, say, five years ago.

When traffic returns to normal, the railways will find it necessary to spend large sums to insure the continued successful operation of such trains, for it would be out of the question for them to abandon such train service, even if they wanted to, after shippers and receivers have become accustomed to it.

The probabilities are, instead, that such service will be extended and increased, with commensurate expenditures to permit its successful operation.

Eleven-hour, overnight freight trains are now in daily operation between Chicago and St. Paul-Minneapolis; freight trains that are actually running around passenger trains. One of the roads that is now operating these 11-hr. freight trains runs them a distance of over 500 miles at an average speed of more than 45 miles an hour. Among other fast freight services that are being successfully operated are the overnight Buffalo-New York City trains, and the New England-New York City-Philadelphia trains.

The manner in which freight service generally has been speeded up and service improved is indicated in the following table, showing the acceleration of freight train speed, (for all trains), in the decade ending with 1933:

	Miles Per Hour
1924	11.5
1925	11.8
1926	11.9
1927	12.3
1928	12.9
1929	13.2
1930	13.8
1931	14.8
1932	15.5
1933	15.7

Deferred Purchases

The manner in which operating costs may be reduced by spending money for improvement in facilities and equipment, while also increasing freight train speeds materially to meet highway competition, is strikingly illustrated by a study made recently. This revealed that on one operating division, consisting of 140 miles of double-track main line, over which some of the new high-speed freight trains operate, an average of 56 freight locomotives were assigned in 1925 to handle 453 manifest trains and 644 local trains per month. At that time the average speed of manifest freight trains was 22 miles per hour eastbound and 18.2 miles per hour westbound, with an average of 32,159 gross ton-miles per train hour. It costs 18.99 cents per thousand gross ton-miles for wages of crews on all freight trains, and 105 lb. of coal were used.

During the next five years, a number of changes were made in the curvature, three bridges were strengthened and one was completely rebuilt to eliminate former speed restrictions. Larger freight locomotives were also purchased and put in service, and the entire signal system was modernized. The results of this expenditure, as indicated by 1934 figures, are interesting. Although, with

Purchase of Motor Trucks Aids Railways in Providing Flexible Operation to Meet Competition

the demand for speed, the manifest trains were materially speeded up—to 24.6 miles per hour eastbound and 30.6 miles per hour westbound—the wage cost was reduced to 14.56 cents per thousand gross ton-miles and the coal consumption now is 91.8 lb. per thousand gross ton-miles. Gross ton-miles per train hour rose to 64,282, or in other words, nearly double the 1925 figure of 32,159. At the same time, the number of locomotives assigned was materially reduced.

It must not be assumed from this, of course, that it costs less to operate high-speed trains than drag freights, since, actually, the reverse is true. These figures indicate, however, what may be done to increase operating efficiency and lower costs and thereby produce a commensurate increase in net railway operating income, by spending money on new facilities and new equipment.

At the present time there are many more improvements that might be made on the division in question to improve operating conditions and thereby lessen operating costs still further; projects whose fulfillment would mean large orders to the durable goods industry. That these improvements would shortly pay for themselves, that they are not only highly desirable but actually very much needed if only a relatively small increase in traffic occurs in the near future, is recognized by the executives of this railroad. The practically certain dividends to be gained by the expenditure of considerable sums of money are recognized. Yet, despite all this, nothing can be done, for the money is not available, even for such demonstrably good investments as this.

The instance cited could be multiplied hundreds of times in various parts of the country, for there are almost countless places where the making of an investment for construction, or for the purchase of new equipment, would result in early and assured dividends.

Merchandise Transportation Improved

Gradually and despite all handicaps, the transportation of l.c.l. freight is being revolutionized. Under normal conditions these developments would receive a remarkable impetus. At present, most of them are being conducted as cheaply as possible, and sometimes under rather makeshift arrangements that are efficient only because of the light traffic now being handled. With the return of normal traffic, these services will require the expenditure of considerable sums in the way of increased operating facilities.

Whereas, as recently as the beginning of this year, pick-up and delivery service was available only in spots, and rather few spots at that, the shipper and receiver of freight may now be assured of storedoor service on almost a country-wide basis. Overnight merchandise trains, providing first morning delivery at points up to 300 miles, in connection with storedoor service, are the rule now, rather than the exception. Pick-up and delivery service has shown a really remarkable development. This service was confined, at first, only to one railroad and for short distances, with definite limitations as to the commodities handled. The popularity of the service, together with the additional revenue brought in, has caused it to be amplified considerably. The railways using it have found that not only has the steady decline in l.c.l. traffic moving over their rails been checked but, in a short time, actual increases have been apparent.

The results were such that more and more railways have begun installing the plan, while on those roads where it was already in effect the scope of the plan has been broadened. On many roads, notably the Pennsylvania and the Erie, pick-up and delivery service is now on a system-wide basis, with reciprocal arrangements not only with subsidiary lines but also with connections. At the same time, the extent of the plan was made greater by the removal of many of the restrictions covering the classes of commodities to be handled, so that now all l.c.l. freight, with the exception of a few such commodities as explosives, may be shipped under the advantages of storedoor service.

During 1934, too, storedoor service was also started on such carload commodities as new automobiles, on an experimental basis at first, but with such success as to pass out of the experimental into the practical stage within a week or two after such operations began. The development of containers and other devices for joint rail-highway transportation of freight, including a well-established and successful ferry service of highway trailers, has also been marked this year. An overnight rail transportation of highway trailers between Chicago and the Mississippi river has been so successfully established as to result already in a traffic volume of some 4,000 cars or 8,000 trailers per year.

Automotive Equipment

The extension of the use of automotive equipment as an adjunct to rail service, and as a means of meeting highway competition, which was progressing rapidly for several years, almost came to a standstill in 1930-31. When money is available, every sign points to a vastly increased use of motor trucks and motor buses, particularly since their use is more and more demonstrably profitable in numerous ways. Especially, the motor truck is proving a valuable aid in solving difficult terminal problems. It is being used, too, in replacement of unprofitable local freight service in many instances throughout the country, saving both money and time on traffic hauled to concentration points and thence distributed by truck to the smaller destinations.

The lack of money with which to conduct experiments, even when such experiments show every likelihood of proving successful, has had a dampening effect on the use of the motor coach as a railway auxiliary, although its value as a substitute for unprofitable branch line passenger service has been clearly demonstrated. This lack of money has also been a deterrent to the expansion of highway subsidiaries of the railways. However, the recent success of the Burlington Transportation Company, motor coach operating subsidiary of the Chicago, Burlington & Quincy, in establishing through motor coach routes, as well as substituting buses for branch line passenger trains, shows what can be done in this direction. To accomplish this, however, it was necessary for the Burlington to purchase at once eight new streamlined coaches of the latest design. The expenditure for automotive equipment represents a considerable stumbling block for most railways, with their revenues, actual and prospective, in their present condition. These railways have been forced to defer the purchase of automotive equipment, just as they have been forced to postpone many other purchases.

Conclusions

The expenditure of money to meet competitive conditions has been large, even in these days of extremely poor railway earnings. It would be much greater if revenues would permit. The railways realize that lower costs are the most effective means of meeting competition.

Handicapped in many ways, and with drastically reduced revenues, the railways, as shown in this article, have, none-the-less, gone ahead spending money to meet competition, at a rate which is quite sufficient to indicate the tremendous possibilities in this regard for the future, and its enormous effect on the durable goods industry.

Increasing Railway
Net Earnings by—

IMPROVED METHODS AND FACILITIES

Railroads have since the beginning increasingly improved the economy of their service—They must be permitted to continue

ECONOMIC progress on the railroads, as in any industry, consists in devising methods of doing the work of the industry with less expenditure of human effort. It is only through constant search for such improvements that good wages can be paid to employees and that reasonable prices can be charged to consumers. The continued substitution of devices created by human ingenuity to replace brute physical strength and manual skill is the only means by which the standard of living of any people can be improved—by providing a source from which additions may be made to their incomes as producers (without the necessity of reducing the income of anyone else), and, at the same time, making possible a reduction in the price of products to the people as consumers.

Economic progress always means getting work done with a saving in human effort. There is a vast field for co-operative economies by the railroads which cannot be fully explored because of the labor provisions of the Emergency Transportation Act of 1933. Co-ordinator Eastman has suggested that reasonable protection be provided employees and that hampering restrictions on co-operative economies be removed. Railroad history is a continuing record of ever-increasing economies, and further progress requires that they be continued. Such economies offer a large potential source of increased net railway operating income, and hence a means toward increased buying by the railroads.

Any person, therefore, who opposes the introduction in industry of methods and new machines which economize human effort is, in effect, contending that, as a people, we are wealthy enough; that we do not need to add to the commodities and services available for consumption. Yet it is difficult to find an individual anywhere who would not welcome an opportunity to have things and services at his disposal which he does not have now. There is only one way to provide an increase in the total of goods and services available for distribution among all the people; and that is to reduce the human effort involved in providing them, so that—

(1) High money wages may be paid those who contribute to their production, thus giving these workers effective command over additional goods and services which they desire, and so that

(2) The cost of the product of these workers may be kept low to the end that consumers can afford to purchase larger quantities of it.

A history of the railroad industry might be written entirely in terms of the unremitting decrease it has made in the cost of the transportation service it provides, and the manner in which this saving has been passed along to society in terms of lower rates for railroad services and in higher wages to railroad labor.

To oppose the principle of a continuation of the process of applying devices to railroad transportation which will reduce the human effort involved in providing it is, therefore, equivalent to contending that railway wages should never be increased further and that charges to patrons should never be lower; that the industry, in other words, should become completely stationary.

No one reasons in this manner to arrive at this conclusion. But there are people aplenty who arrive at the conclusion nevertheless, and, what is worse, they have given it the effect of the law. The Emergency Transportation Act of 1933 contains the following clause:

> Sec. 7 (b) The number of employees in the service of a carrier shall not be reduced by reason of any action taken pursuant to the authority of this title below the number as shown by the pay rolls of employees in service during the month of May, 1933, after deducting the number who have been removed from the pay rolls after the effective date of this Act by reason of death, normal retirements, or resignation, but not more in any one year than 5 per centum of said number in service during May, 1933; nor shall any employee in such service be deprived of employment such as he had during said month of May or be in a worse position with respect to his compensation for such employment, by reason of any action taken pursuant to the authority conferred by this title.

So if the Federal Co-ordinator of Transportation, whose job was created by the same law and who was given the duty of instituting economies in railroad operation, should suggest to two railroads that they pool a couple of competing passenger trains which are providing a service of no more utility to the public, but at double the cost, of one train, then, under the provision quoted above, such a move toward economy is taboo.

This provision in the law is equivalent to a declaration that the purpose of the transportation industry is not primarily to provide transportation service at the lowest cost consistent with fair wages and efficient service, but rather that its principle duty is to make employment. The goal of such a policy is not less human effort in proportion to the product, but the continuance of the *status quo*. If it is forbidden to make one train do the work of two, which it could do equally as well and at great saving in human effort, then would it not be just as logical to require that three trains be run to provide the service? Or ten trains? Or, for that matter (if the original premise of "making work" or "saving jobs" is logical), then why not abandon mechanical transportation altogether and give the job

managements. It was their plan, their ambition, to continue this highly successful campaign for operating efficiency. Sharply curtailed revenues have made this temporarily impossible.

Proof that the railways in general do not have the money to spend is not hard to find. A glance at the statistics of operating revenues should suffice. Using 1929 for comparison, operating revenues in 1930 were approximately one billion dollars less than in 1929; more than two billion dollars less in 1931; and over three billion dollars less in both 1932 and 1933, a total drop in operating revenues for the four years of nine and a half billion dollars. This sum represents not merely a decline in revenues but also a truly appalling decrease in purchasing power, since there is every reason to assume that the railways would have continued their policy of turning back large sums into their properties in the form of physical improvements.

Despite the most rigid economies, operating expenses during the same period could be reduced only six billion, two hundred million dollars, or about two-thirds of the falling off in revenues. The success attending the efforts of the railways to maintain their service under such discouraging circumstances is indicated by such measures of efficiency as safety, speed of trains and fuel consumption, all of which have shown continued improvement.

If Money Were Available

The present impossibility of the program does not, however, indicate any lack of eagerness on the part of railway officers to continue it. They are as keenly alive as ever to the possibilities of improving transportation and lowering its costs by well-considered capital expenditures.

What new facilities would the railways construct to increase the net operating income through improved operations, if they had the money? The answer is that a continuation of the construction program—one might almost say rebuilding program, since many railways were practically rebuilt in the decade 1920-1929—would be in order.

In other words, in spending money for ultimate operating economies, the railways would continue their abruptly halted program of building additional main tracks where needed; of buying modern rolling stock, building new shops, increasing the capacity and efficiency of their lines by centralized train control; of increasing the speed of freight cars through terminals by yard reconstruction, with particular reference to retarder equipment; of laying heavier rail, and of ironing out curves and gradients interfering with the high-speed requirements of modern rail transportation.

More Than Former Facilities Necessary

All of these figures represent comparisons between conditions existing on the railroads now and conditions as they were prior to the depression. One can not, however, stop there in estimating prospective railway buying, if freight revenues should increase. Mere replacement in kind will not suffice. This fact was realized before the decline in freight revenues occurred, and conditions since then have emphasized the necessity. The old monopoly of transportation enjoyed by the railroads is gone and with it the former standards of equipment and maintenance, standards of operating methods and standards of traffic solicitation. Developments during the depression, handicapped though the railways have been through lack of money, have pointed the way and, given any assurance of adequate freight revenues, these developments would be spurred on.

The railways realize there is little use in speeding up road movement if terminal delays offset such speed. Store-door service, together with mechanical freight house equipment, has aided and is aiding in preventing terminal delays to l. c. l. merchandise, but carload handling at and through terminals still remains a major problem.

Terminal and Other Improvements

Modernization and centralization of terminals is an essential factor in rehabilitating the railways' revenues. That the railways realized this some years ago. The preclassification of freight and the operation of "maintrackers" have been of tremendous benefit in eliminating terminal delays, but the fact remains that an archaic yard is a drag on all railway operations. Given money to spend, it is a safe prediction that such yards would soon cease to be a part of the railway picture. The trend was definitely in that direction before the depression; the importance of eliminating such yards has since been brought out even more clearly during the lean years and, with increased freight revenues, terminal expenditures will constitute a major item in railway rehabilitation.

Four Years of Retrenchment

The theory of economists, well supported by facts, is that the world's inventory of durable goods must be replaced approximately once every 20 years. The durable goods industry has now endured four years of lack of buying by the railways, its largest customers. Even on the theory that the railways would be rehabilitated only in kind, this 20 per cent depletion of the railways' supply of durable goods, if made up, would represent an almost incalculable expenditure, resulting in the re-employment of millions and the restoration of that balance so necessary to national prosperity.

Moreover, if legislative handicaps preventing co-operative economies by the railroads are removed, great savings in operating expenses can be realized which will give them funds with which to purchase the modern equipment and other facilities they need. Such economies will stimulate the durable goods industries, which in turn will provide more traffic and employment on the railroads.

One may term the railways' buying power latent, dormant, or any other of half a dozen terms, but the fact remains that it is potential, it is imminent, and will inevitably exercise its tremendous influence toward national recovery the moment that railway revenues begin an upward climb.

1929 Standards Will Be Excelled

The rehabilitation of the railways will not be simply to their 1929 standards—something far beyond that is indicated and almost surely predictable. Demonstrably, then, the railways are alert for opportunities to spend money in order to make money. Even under most discouragingly adverse conditions, they have continued their researches, in so far as possible, into better and more efficient means of transporting passengers and freight. Increased revenues will immediately be ploughed into the properties and used for the badly needed operating facilities to provide an increased net operating income growing out of more efficient operating methods.

Once started, the cycle will almost automatically extend itself. The tremendous importance of increased railway buying will have its effect in still further increasing freight revenues. The freight bill paid by railways to other railways under normal purchasing conditions is in itself a large item, much larger than even most railway officers appreciate.

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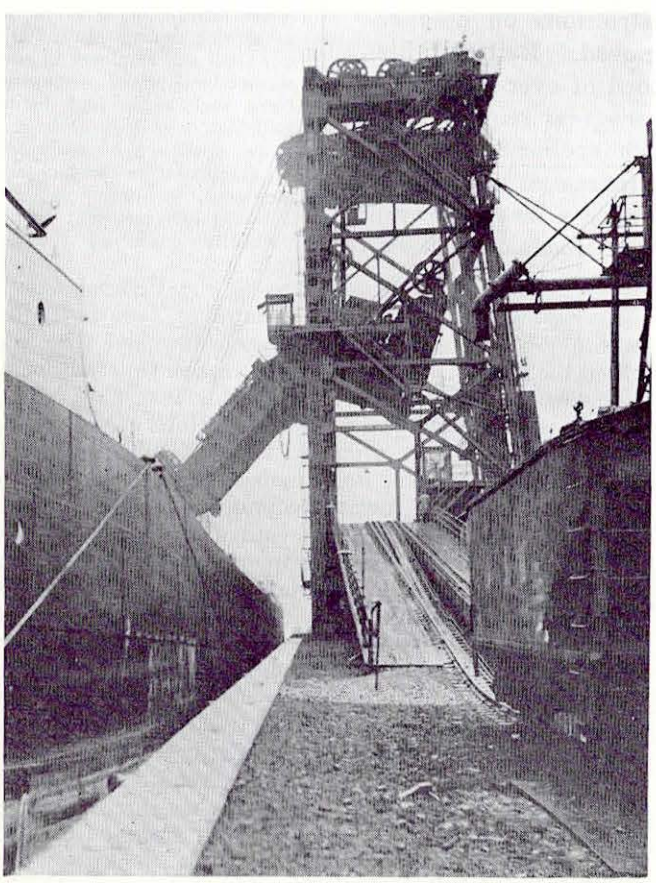
Retarder-Equipped Yards Increase Terminal Efficiency

to pack mules or to human carriers? A laborer working for a dollar a day might carry a load of 200 lb. for ten miles. This is equivalent to carrying one ton for one mile, a task which the railroads perform for one cent. The question for the advocate of a "make work" policy to answer is: Do you favor transportation at good wages at a cost of one cent per ton carried one mile, or do you prefer $1 a day for transportation workers at a cost of $1 per ton per mile?

Individual Worker Entitled to Consideration

The "make work" advocates responsible for Section 7 of the Emergency Transportation Act of 1933, of course, do not consider their position from an economic point of view. What they do consider is the immediate interest of the specific worker whose services may be temporarily dispensed with in the event that the railroads evolve some method for reducing the volume of human effort needed to perform a given transportation task. The situation of the individual worker is entitled to consideration. But his situation can be taken care of by some means other than blocking all further progress in the efficiency of transportation. As Co-ordinator Eastman has said:

> Economies in railroad operation are bound, in large part, to be labor-saving economies. The present Emergency Act contains a provision which goes far to prevent such economies from co-ordination, but that Act expires on June 16, 1935. The changes in methods of operation and service toward which we are aiming are not mere ways of shaving expense. The main purpose is to regain and develop business. The choice is between a live and growing railroad industry and one which has passed its prime and is on its way to a decrepit old age. The employees are intelligent, and as times improve I have faith that they will not err in this choice. But in order that their vision may not be clouded, they must be given reasonable protection. We are working on that problem. It is cruel and inhuman to discard faithful employees like worn-out crossties. The shocks of sudden economic changes can at least be cushioned.



Modern Car Unloading Facilities Illustrate Diversity of Railway Facilities

The economies which the railroads can put into effect as individual companies, or with each other informally and not under the provisions of this 1933 act, are not subject to this restriction. Such economies on a vast scale have already been adopted. Unremunerative train service has been discontinued and uneconomical trackage has been abandoned. Shops and offices have been consolidated. Machine methods have been evolved to make human effort more productive.

Most of these economies, however, have occurred only within the individual companies. Co-operative action by adjacent carriers serving the same region has been discouraged, where it has not been altogether prohibited. In such co-operative economies, where parallel railroads might agree together to concentrate the bulk of their traffic on the most economical route; where consolidated repair facilities might permit the use of economical machine methods by providing sufficient volume to justify such methods; where competing companies themselves might combine into one new company and pool all their operations with great savings in cost and at no loss in public service—such is the field of economy which, because of hampering legislation, has been largely unexplored by the railroads. It thus offers a virgin territory the rewards for the exploration of which should be very great—provided the law permits. Such permission can be given with ample safeguards for the rights of individuals, without which such a program, despite its fundamental economic importance, might be socially undesirable, as it would certainly be politically inexpedient.

Some improvements in operating efficiency can be

made with very little expenditure of money. But most of them involve the substitution of machine methods for hand labor, or of modern machines for obsolete ones, and this, of course, requires the expenditure of considerable sums of money. In the eight years from 1923 to 1930, inclusive, the Class I railroads, excluding switching and terminal companies, expended $6,741,716,000 for additions and betterments to their properties—a new peak in railway improvement activities. This was an annual average of $842,714,500—a truly tremendous sum to spend on improvements alone and an even more staggering figure when combined with the huge sums then being expended for current upkeep and maintenance. By comparison, expenditures for additions and betterments in 1932 amounted to but $157,194,000, a decrease of $675,520,500, while in 1933 they totaled only $103,493,000.

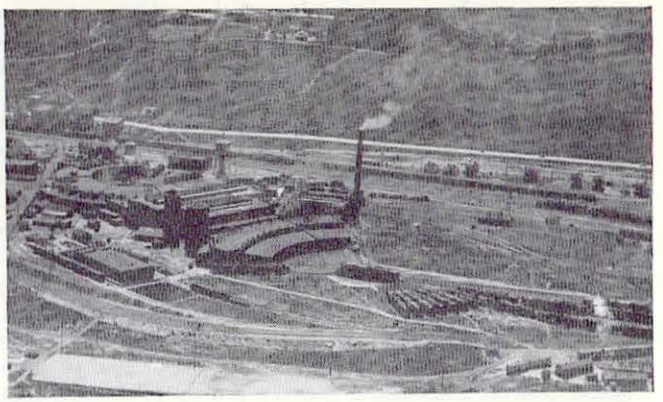
Accepting the 1923-30 average as a basis, the reduction in railway expenditures for improvements to their properties during the years 1931-32-33 totaled $1,895,544,500, a striking measure of the blow that has befallen the capital goods industries from this source, for, as will be indicated by a detailed analysis of these figures, practically all of these huge sums were formerly poured into the coffers of the capital goods industry. The loss by that industry of these hundreds of millions of dollars of railway orders annually is conceded to be a most important factor in the prostration of the heavy goods industries that has prevailed since 1930.

Why the Money Was Spent

These huge expenditures did not represent a mere spending spree, nor the spur of over-expansion. The railways, even in the prosperous years of 1923 to 1929, did not have excess money to fling about carelessly. Each of these expenditures represented a carefully considered plan for the improvement of service, or for greater operating efficiency, nearly always at less cost.

The results speak for themselves. The ever recurring car shortages became a thing of the past, and have remained so. These car shortages were in large measure the result of congestion rather than lack of equipment. They were eliminated, not through the purchase of more equipment (the number of freight cars actually declined during the period) but by increased operating efficiency made possible by the provision of the new facilities.

These expenditures were direct contributions to operating efficiency. The operating ratio gives the results; it was 71.4 in 1929, lower than in any previous year since 1917. At the same time, the index of general railway efficiency, an index set up from thirteen separate factors of operating efficiency, was higher than in any year since the war, being more than 25 per cent above 1922. The actual figures were as follows:



Modern Engine Terminals Aid in Lowering Transportation Costs

1923	103.4
1924	104.8
1925	109.4
1926	113.5
1927	115.2
1928	118.1
1929	121.5

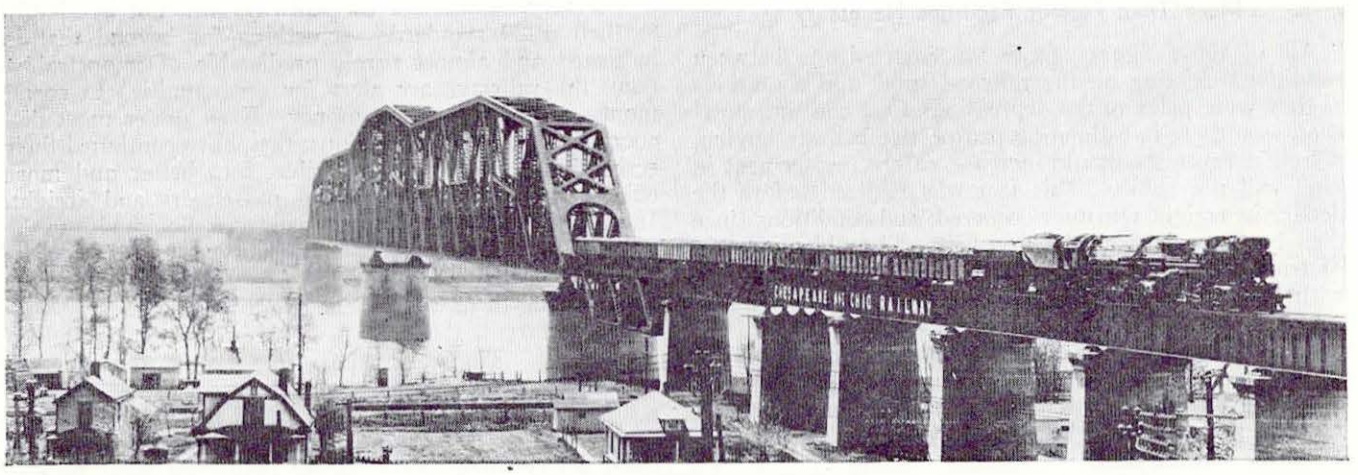
In 1929, too, maximum levels of performance were reached in at least 12 factors of efficient operation, while the railways maintained satisfactory levels in all the remaining factors. The operating records created in 1929, with 1922 comparisons, included the following indices of operating efficiency:

	1929	1922
Freight car-miles per day	32.3	23.5
Net ton-miles per day	547	424
Gross tons per freight train	1,865	1,464
Net tons per freight train	804	676
Gross ton-miles per freight train hour	24,539	16,188
Net ton-miles per freight train hour	10,580	7,479
Freight train speed, average miles per hour	13.2	11.1
Freight locomotive miles per locomotive day	65.1	52.0
Passenger locomotive miles per locomotive day	120.3	101.7
Fuel consumption per freight unit	125 lb.	163 lb.
Fuel consumption per passenger unit	14.9 lb.	17.9 lb.
Percentage of serviceable freight locomotives	83.6	74.5

In addition the railways handled more freight cars and more passenger cars per train in 1929 than in any previous year.

No Money to Spend

The lesson of these tremendous strides in operating efficiency as a direct result of the expenditure of large sums for new facilities was by no means lost by railway



New Power on a New Bridge—Equipment and Structures Expenditures Aid in Promoting Operating Efficiency

managements. It was their plan, their ambition, to continue this highly successful campaign for operating efficiency. Sharply curtailed revenues have made this temporarily impossible.

Proof that the railways in general do not have the money to spend is not hard to find. A glance at the statistics of operating revenues should suffice. Using 1929 for comparison, operating revenues in 1930 were approximately one billion dollars less than in 1929; more than two billion dollars less in 1931; and over three billion dollars less in both 1932 and 1933, a total drop in operating revenues for the four years of nine and a half billion dollars. This sum represents not merely a decline in revenues but also a truly appalling decrease in purchasing power, since there is every reason to assume that the railways would have continued their policy of turning back large sums into their properties in the form of physical improvements.

Despite the most rigid economies, operating expenses during the same period could be reduced only six billion, two hundred million dollars, or about two-thirds of the falling off in revenues. The success attending the efforts of the railways to maintain their service under such discouraging circumstances is indicated by such measures of efficiency as safety, speed of trains and fuel consumption, all of which have shown continued improvement.

If Money Were Available

The present impossibility of the program does not, however, indicate any lack of eagerness on the part of railway officers to continue it. They are as keenly alive as ever to the possibilities of improving transportation and lowering its costs by well-considered capital expenditures.

What new facilities would the railways construct to increase the net operating income through improved operations, if they had the money? The answer is that a continuation of the construction program—one might almost say rebuilding program, since many railways were practically rebuilt in the decade 1920-1929—would be in order.

In other words, in spending money for ultimate operating economies, the railways would continue their abruptly halted program of building additional main tracks where needed; of buying modern rolling stock, building new shops, increasing the capacity and efficiency of their lines by centralized train control; of increasing the speed of freight cars through terminals by yard reconstruction, with particular reference to retarder equipment; of laying heavier rail, and of ironing out curves and gradients interfering with the high-speed requirements of modern rail transportation.

More Than Former Facilities Necessary

All of these figures represent comparisons between conditions existing on the railroads now and conditions as they were prior to the depression. One can not, however, stop there in estimating prospective railway buying, if freight revenues should increase. Mere replacement in kind will not suffice. This fact was realized before the decline in freight revenues occurred, and conditions since then have emphasized the necessity. The old monopoly of transportation enjoyed by the railroads is gone and with it the former standards of equipment and maintenance, standards of operating methods and standards of traffic solicitation. Developments during the depression, handicapped though the railways have been through lack of money, have pointed the way and, given any assurance of adequate freight revenues, these developments would be spurred on.

The railways realize there is little use in speeding up road movement if terminal delays offset such speed. Store-door service, together with mechanical freight house equipment, has aided and is aiding in preventing terminal delays to l. c. l. merchandise, but carload handling at and through terminals still remains a major problem.

Terminal and Other Improvements

Modernization and centralization of terminals is an essential factor in rehabilitating the railways' revenues. That the railways realized this some years ago. The preclassification of freight and the operation of "main-trackers" have been of tremendous benefit in eliminating terminal delays, but the fact remains that an archaic yard is a drag on all railway operations. Given money to spend, it is a safe prediction that such yards would soon cease to be a part of the railway picture. The trend was definitely in that direction before the depression; the importance of eliminating such yards has since been brought out even more clearly during the lean years and, with increased freight revenues, terminal expenditures will constitute a major item in railway rehabilitation.

Four Years of Retrenchment

The theory of economists, well supported by facts, is that the world's inventory of durable goods must be replaced approximately once every 20 years. The durable goods industry has now endured four years of lack of buying by the railways, its largest customers. Even on the theory that the railways would be rehabilitated only in kind, this 20 per cent depletion of the railways' supply of durable goods, if made up, would represent an almost incalculable expenditure, resulting in the re-employment of millions and the restoration of that balance so necessary to national prosperity.

Moreover, if legislative handicaps preventing co-operative economies by the railroads are removed, great savings in operating expenses can be realized which will give them funds with which to purchase the modern equipment and other facilities they need. Such economies will stimulate the durable goods industries, which in turn will provide more traffic and employment on the railroads.

One may term the railways' buying power latent, dormant, or any other of half a dozen terms, but the fact remains that it is potential, it is imminent, and will inevitably exercise its tremendous influence toward national recovery the moment that railway revenues begin an upward climb.

1929 Standards Will Be Excelled

The rehabilitation of the railways will not be simply to their 1929 standards—something far beyond that is indicated and almost surely predictable. Demonstrably, then, the railways are alert for opportunities to spend money in order to make money. Even under most discouragingly adverse conditions, they have continued their researches, in so far as possible, into better and more efficient means of transporting passengers and freight. Increased revenues will immediately be ploughed into the properties and used for the badly needed operating facilities to provide an increased net operating income growing out of more efficient operating methods.

Once started, the cycle will almost automatically extend itself. The tremendous importance of increased railway buying will have its effect in still further increasing freight revenues. The freight bill paid by railways to other railways under normal purchasing conditions is in itself a large item, much larger than even most railway officers appreciate.

Liberal Credit Essential to Maximum Railway Purchases

Earnings determine credit—Adequate security is necessary even for loans from the government

IF the railways are to contribute materially to the revival of the durable goods industries ample credit is essential. Railways can make purchases from only two sources, from earnings or from capital contributed by those who expect the principal of their investment to be safe and that they will receive a return upon it. Purchases of materials used in operation depend directly upon current earnings, and although during the past year the government, through the Public Works Administration, has been making loans to railways for maintenance work, thereby enabling the roads to spread the cost of taking up deferred maintenance over a period of years, even the government, with all the loans and grants it has been making for various purposes, expects to receive an interest return which will meet the interest it pays for borrowed money and the cost of administration. And it expects to be repaid.

The first requisite for credit which will enable the railways to increase their purchases is increased railway earnings. Without such credit, neither the government nor anyone else will lend to them. But, even with earnings which would justify the extension of credit, some of the railroads may not be able to obtain the funds they require if the market for private capital is timorous. Under such circumstances, the provision of government credit is sound, and is necessary. Government credit cannot, alone, help the railways to increase their purchases. Combined with a reasonable increase in earnings, it can help a great deal.

Earnings are essential to ample credit not only because they reflect the ability both to pay the interest on borrowed money and to provide for the ultimate payment of the principal, but also because they directly affect the value of the collateral which a railroad has to offer as security. And the government itself insists on adequate collateral security for its loans to the railroads. Very few receivers or trustees of roads in financial difficulties have succeeded in obtaining loans from either the Reconstruction Finance Corporation or from the Public Works Administration. Moreover some roads that were enabled to increase their shop and other maintenance forces earlier in the year by the loans which they had received from the P. W. A. have since been forced to close down their shops because of reduced earnings. In October the number of maintenance of way and structures employees was 3.07 per cent less than in October last year, while the number in the maintenance of equipment and stores group decreased 1.08 per cent.

The Reconstruction Finance Corporation act requires that loans shall be "adequately secured" and in practice the Interstate Commerce Commission is called upon to decide what loans will be adequately secured and what collateral shall be required. Moreover, a provision in the emergency transportation act, 1933, directs the commission not to approve a loan to a carrier under the R.F.C. act if it is of the opinion that the carrier is in need of financial reorganization. Also the P.W.A. in practice has insisted on adequate collateral for its loans and has rejected several applications from companies that were unable to satisfy its requirements in that respect. While in many cases it has accepted equipment trust certificates covering the equipment to be constructed with the proceeds of its loans as adequate security, it has in some instances declined to do so because of the large amount of such obligations of this character which the railroad had already outstanding.

Most of the railroad loans made by the R.F.C. have been for refinancing or to enable roads to pay interest, taxes, unpaid vouchers, etc. In the early part of this year very few such loans were made, while 31 railroads were obtaining loans from the P.W.A. to spend for labor and materials, but of late, as railroad earnings have declined, the P.W.A. loans have come to a standstill and several roads have again applied to the R.F.C.

Railroad Loans Represent Sound Policy

Until conditions are created which will re-open the private capital market to the railroads there are many arguments in favor of a policy by which the government will extend and the railroads will apply for loans from the government for maintenance and equipment. In the first place, loans made to railroads are likely to be employed for more useful purposes than some of the other ways in which the government is spending and loaning money, and in the second place it has been demonstrated that they are more likely to transfer men from the relief rolls to payrolls quickly than many other classes of loans. Loans may be made by the government to railroads through the R.F.C. to prevent the bankruptcy of some until they can make enough earnings to avoid it and they may also be made through the P.W.A. to enable them to make expenditures for improvements and maintenance which would be made later anyway if earnings would then justify them or which will tend to improve the condition of the railroads by making their service more attractive. Such loans would increase buying from the durable goods industries and thereby hasten economic recovery.

The determination of the government to grant the railroads credit for maintenance purposes and the purchase of new equipment, in the provision of the national industrial recovery act under which the P.W.A. has authorized nearly $200,000,000 of railroad loans during the past year, was not wholly or even mainly due to their need for such assistance. It was believed that stimulation of the railroad equipment industry would have an important effect upon the capital goods industries as a whole. Nor were the loans to railroads made on any charitable basis, except to the extent represented by the fact that no interest is charged for the first year.

The R.F.C. loans to railroads were mostly made in 1932. Its total disbursements to railroads have been $423,801,021, of which $70,631,455 has been repaid. In 1932 the R.F.C. loaned railroads a net amount of about

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Joseph B. Eastman

Mr. Eastman, who is Federal Co-ordinator of Transportation, says: "The loans which the Public Works Administration has made to the railroads have been of decided benefit to the capital goods industries as well as to the railroads. I hope and expect that this policy can be continued. . . .The rehabilitation of the railroads is a matter of the most vital interest to the entire country. It will stimulate commerce and industry as few things will, furnish work for capital goods industries which are now lagging behind, and eventually increase the volume of transportation movement. . . . But do not forget that such improvements cost money and require credit."

$280,000,000; in 1933 the net additions to its railroad loans outstanding was $57,000,000, and up to the date of its latest report the net total had been increased only about $16,000,000 this year, although the Interstate Commerce Commission has recently authorized several additional loans.

The fact that loans to railroads to be spent by them for maintenance work and new equipment have been peculiarly well adapted to the purpose of promoting prompt creation of business and employment has been recognized by prominent administration officials on several occasions. Early in the summer the Public Works Administration announced in a public statement that "the railroad reconstruction and improvement phase of the P.W.A. program has been the first to reach peak production of employment, being unhampered by local laws and regulations which have held up the start of many non-federal projects being constructed by states, counties, and towns."

The total appropriations which thus far have been available to the Public Works Administration amount to $3,700,000,000, of which approximately $1,578,000,000 was allotted to federal projects and $970,000,000 to non-federal projects, most of the rest having been devoted to non-construction projects. In a report to the President in August as executive secretary of the Executive Council, Donald R. Richberg, pointed out that it was estimated that only about 30 per cent of all P.W.A. allotments and about 38 per cent of the non-federal allotments had been spent, but that "in the non-federal classification, railroads, having between one-fourth to one-fifth of non-federal allotments, have accounted for over 60 per cent of non-federal expenditures. 48 per cent of all railroad money has been spent and 53 per cent of man-hours used, in comparison with 8 per cent of money and 7 per cent of man-hours in other non-federal projects." Later reports show that as of November 3 nearly 61 per cent of the railroad allotments of $199,607,000 had been expended. Mr. Richberg also stated that the Administrator of the P.W.A. fund, Secretary of the Interior Harold L. Ickes, had reported that "P.W.A. money allotted to public roads and to railroads has put money out and put

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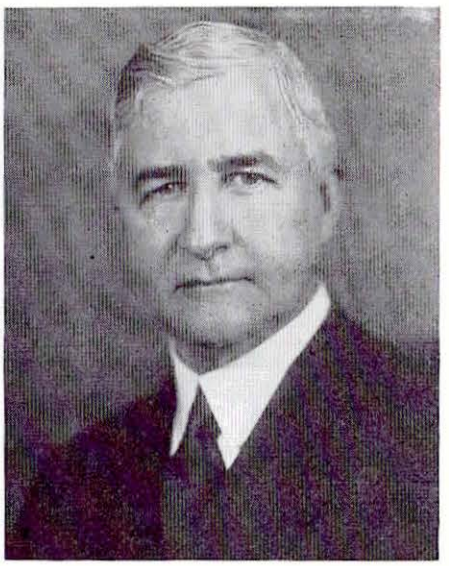
Harold L. Ickes

Secretary of Interior Ickes, who is Public Works Administrator, says: "P.W.A. money allotted to public roads and to railroads has put money out and put men to work more promptly and in larger amounts than allotments for any other purpose."

Mr. Jones, who is Chairman of the Reconstruction Finance Corporation, says: "The railroads are one of our biggest users of materials and employers of labor, and are necessary to our national existence. They have borrowed heavily from the government in the past and repaid their loans. Many of them will need government loans during the coming year. This is a responsibility that we will need to meet for the common good."



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Jesse H. Jones

men to work more promptly and in larger amounts than allotments for any other purpose. Allotments for other non-federal projects, mostly to public bodies, have contributed the least to getting P.W.A. money into circulation and men into employment." He pointed out that the Bureau of Public Roads, the War and Navy Departments, and the railroads were prepared to make expenditures promptly. But in non-federal projects, involving cities and other public bodies, many legal difficulties hampered the working out of contracts between the federal government and the borrowers.

Joseph B. Eastman, federal co-ordinator of transportation, also said in a recent address that "the loans, amounting to nearly $200,000,000, which the Public Works Administration has made to the railroads on favorable terms for much-needed new rails, equipment, and general maintenance work have been of decided benefit to the capital goods industries as well as to the railroads," and that "I hope and expect that this policy can be continued."

He also said that "the rehabilitation of the railroads is a matter of the most vital interest to the entire country. It will stimulate commerce and industry as few things will, furnish work for capital goods industries which are now lagging behind, and eventually increase the volume of transportation movement in a way which will be of benefit to all agencies of transportation and the labor engaged therein." But he also warned his audience not to forget that improvements in equipment and service "cost money and require credit."

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President Suggests Lower Interest Rate

President Roosevelt has also indicated a willingness to make additional loans to railroads that can furnish ade-

Mr. Richberg, who is Executive Director of the National Emergency Council, says: "In the non-federal classification, railroads, having between one-fourth to one-fifth of non-federal allotments, have accounted for over 60 per cent of non-federal expenditures."

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Donald R. Richberg

Distribution by States of Railroad Expenditures from P.W.A. Loans

quate security to enable them to increase their expenditures and has even suggested a reduction of one-half of one per cent in the interest rate. It is understood that provision for additional loans to railroads is being planned in connection with the new public works program.

Railroad Expenditures Widely Distributed

As indicating the wide distribution of money expended for railroad improvements it was shown at the time of the loan of $77,000,000 to the Pennsylvania last December for electrification and new equipment that it would mean purchases and employment in 35 states, from coast to coast. The fabricators and manufacturers of the material and equipment to be used have scores of plants located in 23 states, and it was estimated that 45,000,000 man-hours of employment would be created for the employees of the railroad and of the manufacturers and fabricators without taking into account the great amount of indirect employment created by producing, processing and transporting raw materials, for no accurate estimate of that could be made. Loans made to 31 railroads have created work and business in 43 of the 48 states of the Union.

Employment for 100,000

The P.W.A. has made a rough estimate that more than 100,000 men and women were given employment as a result of its loans to railroads, including over 60,000 railroad men, in shops and on the right of way, and others in car and locomotive shops, iron and coal mines, steel foundries, rolling mills, quarries and forests, and that approximately $100,000,000 of materials was purchased. On July 15, according to its reports, 70,060 were directly employed, including 20,533 railroad shopmen on 14 railroads, 35,902 trackmen and other railway employees, and 13,625 in the shops of locomotive and car builders. The Pennsylvania, which obtained the largest loan, had 15,200 men employed on work financed by the P.W.A. in August; the Southern Pacific at one time had 12,050 so employed; the Great Northern, 8,208, and the Illinois Central, 6,036. Up to October 15 the railroad projects had created direct employment on the railroads to the extent of 36,840,900 man-hours and had added $20,386,000 to railroad payrolls.

As of August 15 the Bureau of Labor Statistics reported 34,347 wage earners working on what it classified as railroad "construction" financed by the P.W.A., including electrification, laying of rails and ties, repairs to buildings, etc., with average earnings of 48.2 cents an hour and a total payroll of $1,820,735 for the month. There were also 21,053 employed in railroad shops on work financed by the P.W.A., with a total payroll of $1,642,569 and an average of 63.5 cents an hour.

Geographically the shop workers were distributed as follows:

New England	591	East South Central	2,743
Middle Atlantic	5,641	West South Central	2,463
East North Central	3,529	Mountain	907
West North Central	1,611	Pacific	3,387
South Atlantic	181		

From the beginning of the public works program to August 15, the value of material orders placed on projects financed by the P.W.A. included $5,707,369 for steam locomotives, $330,923 for oil-electric locomotives, $17,368,805 for steel rails, $4,757,927 for rail fastenings, excluding spikes, $34,522,560 for freight cars, $5,661,773 for passenger cars, $219,157 for mail and express cars, and $752,021 for railway switches. A total of $2,270,000 was loaned to five railroads for seven stream-lined trains.

Because of the many ramifications involved the Public Works Administration has not kept a record showing the detailed distribution of the expenditures made under its loans by industries, but the principal purposes for which its loans have been allotted are as follows:

		Per Cent of Total
New equipment	$81,310,500	40.7
Electrification	45,000,000	22.6
Equipment and roadway repairs	37,047,191	18.6
Rail and rail fastenings	27,423,809	13.7
Miscellaneous	8,826,300	4.4
	$199,607,800	100.0

The P.W.A. has prepared a distribution of its loans to 31 railroads among 40 states on the basis of the expenditures to be made at the point of primary assembly, as follows:

Alabama	$1,432,002	New Hampshire	1,335,571
Arizona	330,000	New Jersey	9,270,650
California	3,947,039	New Mexico	121,000
Colorado	1,663,905	New York	8,565,648
Connecticut	192,234	North Dakota	564,993
Delaware	2,294,313	Ohio	6,043,623
Idaho	32,938	Oklahoma	75,000
Illinois	8,496,321	Oregon	1,119,035
Indiana	17,182,175	Pennsylvania	81,160,941
Iowa	21,200	South Dakota	40,205
Kentucky	1,932,100	Tennessee	1,744,028
Louisiana	785,000	Texas	2,435,000
Maine	298,455	Utah	37,000
Maryland	18,409,188	Vermont	54,364
Massachusetts	6,448,608	Virginia	256,775
Michigan	3,043,968	Washington	598,732
Minnesota	2,106,547	West Virginia	6,381,089
Mississippi	2,442,420	Wisconsin	2,341,385
Missouri	2,010,764	District of Columbia	2,981,244
Montana	722,336		
Nevada	690,000	Total	$199,607,800

No Subsidy in Railroad Loans

An important difference between the loans made to railroads and many of the other loans and grants by the government is that the railroad loans were made for useful purposes rather than simply to create employment in various sections of the country. They will be self-liquidating in that they provide within themselves the means for earning the money to repay the loans. While some of them will help the railroads to meet the competition of newer forms of transportation the competition will be conducted on a business basis, as distinguished from that created by the far greater expenditures made by the government on highways and waterways which will stimulate competition with the railroads on a subsidy basis which would be impossible if the users of the facilities had to provide them at their own expense. Much of the P.W.A. money has been disbursed on the basis of an outright grant of 30 per cent of the cost of labor and material.

Moreover the experience of the government with loans to railroads in the past furnishes precedent for confidence that they will repay the money they have borrowed. The transportation act of 1920 provided for a revolving fund of $300,000,000 to be administered by the Interstate Commerce Commission for loans to railroads in the transition period following the termination of the war-time federal control from which the commission made loans to the carriers amounting to $350,600,667. The loans were originally made for 15 years at 6 per cent but in most cases they were paid off long before that time as the railroads were able to refinance from private sources. At the date of the commission's last annual report $317,438,709 had been repaid, $28,842,102 had not yet matured, and only $4,319,854 of principal and $7,654,289 of interest was in default, while the government had collected in interest $89,663,047. As the interest rate was considerably more than the rate paid by the government for money it made a neat profit from the transaction. Moreover, during the period of federal control the Railroad Administration had advanced for the account of the railroads by paying for additions and betterments some $720,000,000 which had not been refinanced when the roads were returned to private management, and practically all of this was collected by the government with interest at 6 per cent.

The Prospect for Increased Railway Buying

Maintenance requirements and modernization programs demand heavy purchases from manufacturers

TO turn from the distressing facts of the past five years of railway operation to the problem of restoring the buying power of the largest customer of the basic industries in this country presents a prospect stimulating alike to the carriers and the public served. Not since traffic was heavy on the railroads and credit was plentiful has the need for new material and equipment been more pronounced and the reasons for providing them more compelling.

Normal Railway Purchases

The railroads normally should spend and do spend approximately two billion dollars per year for supplies, equipment and services, and absorb directly and indirectly approximately one-fifth of all the coal, iron and steel and forest products consumed in the country. For five years their purchases have, with few exceptions, been insufficient to maintain the properties in accordance with former standards and have been restricted to the barest necessities, forcing many roads to use disproportionate amounts of worn material and to resort to makeshifts, with the result that large expenditures for materials must now be made to restore the service life of necessary equipment and facilities and otherwise to overcome their run-down condition.

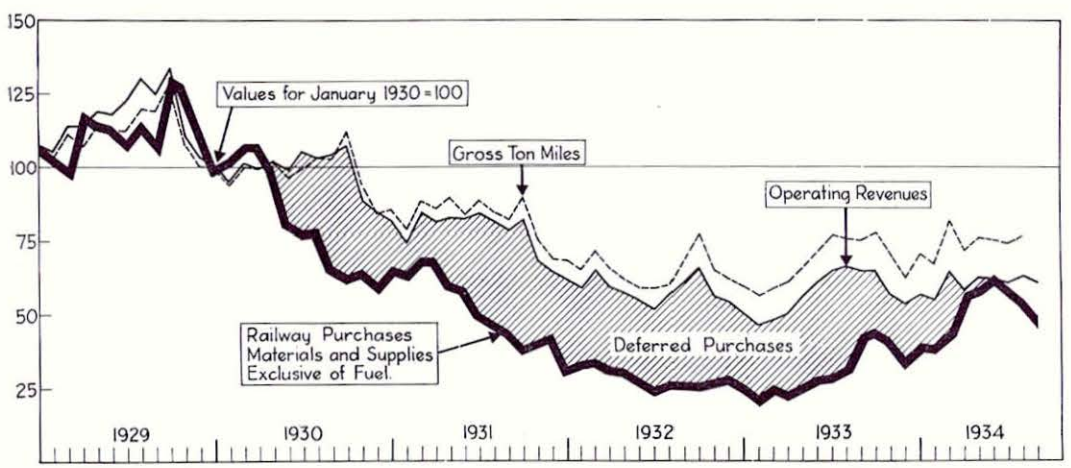
The most conservative estimates place the deficiency in purchases for maintenance alone, which has accrued during the last five years at $400,000,000, which is the difference between the expenditures made by the railroads for maintenance materials in that time and the expenditures the railroads would have made to move the same volume of traffic had they spent proportionately as much during the period out of earnings as they did before the depression. It is well known, however, that considerable deterioration goes on as rapidly when traffic is light as when it is heavy. Rehabilitation work requires large quantities of rail, ties and ballast and extensive renewals of equipment and structures, the need for which was forcibly demonstrated this year by the many applications for loans from the government for maintenance work alone.

Beyond maintenance is the urge for modernization, and the abandonments of unprofitable mileage is not the measure of that problem. It anticipates extensive remodeling programs involving radical departures from traditional patterns and policies in design, arrangement and operation, and new adventures in transportation. The demands for lighter weight trains, for faster speeds for freight and passenger service, for air-conditioning, for the door-to-door delivery of freight, and for greater flexibility and economy of operation have forcibly asserted themselves. The traveling and shipping public clamors for changes and it is no secret that thousands of freight cars and locomotives which have been standing on sidings and storage tracks during the depression will never be used again.

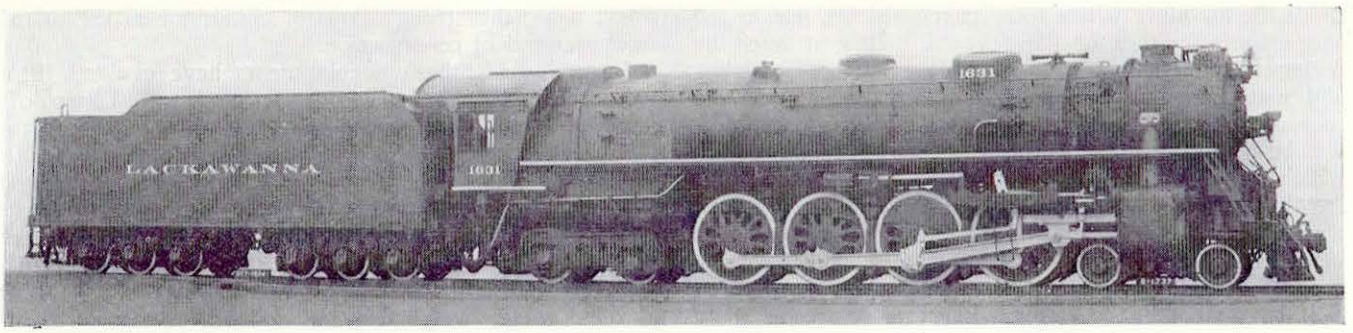
Will Recession in Buying Be Temporary?

The purchases made by the railroads for materials and supplies (exclusive of new equipment), after steadily increasing from $29,000,000 in May, 1933, to $62,000,000 in June, 1934, declined to $58,000,000 in July to $57,000,000 in August, and to $49,500,000 in September. This recession has been disquieting and invites the attention of the public, and it is to be hoped that it will be only temporary.

The fact is that rail transportation faces a new era. It can continue operating along conservative and traditional lines or it can take the path of progress and advancement. The history of the railroads and their importance to the social and economic order dictate the latter course and that is the course they have already begun to follow. It is a course of action that requires vast expenditures throughout the entire range of purchasing and that promises to challenge the resourcefulness of industry and government as well as the railroads.



An Analysis of the Stored-up Buying on Railroads



A Recently Delivered Heavy Fast-Freight Locomotive—Built by American Locomotive Company

Prospective Expenditures on Rolling Stock and Shops

Steadily accumulating unrestored deterioration will receive vigorous action when net railway operating income shows sustained improvement

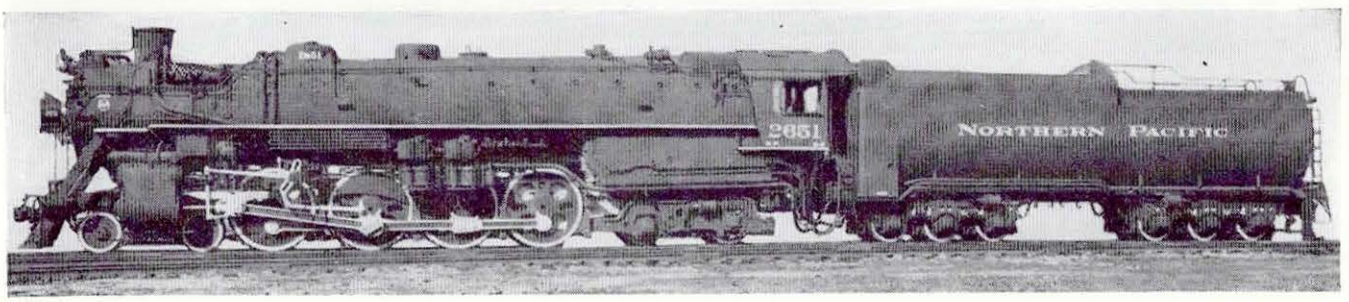
THE depression has tremendously influenced the course of affairs with respect to railway motive power and rolling stock. Its most obvious effect has been the almost complete removal of the railroads from the market for new units of equipment and the relegation to idleness of nearly a third of the equipment owned (freight cars and locomotives), much of it in need of repairs. It has caused extensive shop reorganizations and an almost complete cessation of shop-equipment buying. It has forced a reduction in total operating expenses and in maintenance-of-equipment expenses of one-half, comparing 1933 with 1928-29. What is even worse in its effect on the property, the reduction in the actual out-of-pocket expenditures on repairs of locomotives and cars has been nearly 60 per cent, while the reduction in equipment use has been less than 40 per cent.

But this is not all. While the normal progress of restoration of the equipment inventory has been suspended, the development of invention, which constitutes the major step in the advancement of the art, has gone on unchecked. Indeed, the advent of new materials of construction has greatly enlarged the scope for the useful play of the imagination and skill of the designer. At the same time competitive highway services, which have come clearly into the picture during the depression, have removed old restrictions from the thinking of the patron, both with respect to the character and price of the service which he can demand. Both of these conditions have stimulated the progress of obsolescence during the depression, while the property of the railways has been in a state bordering on suspended animation, so far as effective development is concerned.

Railway officers are conscious of these conditions. They only await the relief of the paralysis caused by lack of traffic and earnings, to act vigorously in the restoration of their motive power and rolling stock, not only to high standards of repair, but also to the new standards of character which have been forming during the depression.

High Spots in the Prospective Buying

When increased earnings permit an expansion of activity by the railways, they will have to deal immediately with a great accumulation of deferred repairs to motive power and rolling stock. This aggregates half a billion dollars—a volume of work about half again as large as was done during either 1932 or 1933. In terms of materials, the complete restoration of the present accumulation of deferred repairs would require close to



The Kind of Locomotive Which Maintains Fast Schedules with Heavy Through Passenger Trains—Built This Year by Baldwin Locomotive Works

twice the amounts which were purchased for use in the shops during either of those years. This, it must be remembered, is in addition to whatever volume of labor and materials may be required to keep even with the requirements of current business. Not all of this work will be done, however. Many of the units of equipment which otherwise would require heavy repairs or rebuilding, have been, and more will be, retired, to be replaced with modern units when growth in traffic and earnings make it possible for the railways to consider major capital expenditures.

It is impossible to set forth in exact detail just how many and what kinds of units of motive power and rolling stock the railways may be expected to buy to replace worn out and obsolete cars and locomotives. There are too many new factors in the situation not yet possible of full evaluation to permit that. There are, however, many indications that replacements and modernization will be large and rapid wherever there have been advancements in design or new types of facilities have been made available. The best evidence of this is what has actually happened in spite of the depression.

In June, 1930, the first air-conditioned passenger car equipped for regular service was exhibited at Atlantic City, N. J., during the annual meeting of the Mechanical Division of the American Railway Association. This was the dining car "Martha Washington" of the Baltimore & Ohio. About a month later the Atchison, Topeka & Santa Fe had its first air-conditioned dining car ready for service. Three years later, at the end of the 1933 season, 648 cars—Pullmans, dining cars and coaches—had been air-conditioned and there are now over 2,500 in service.

In 1932 the possibilities of new materials, which lent themselves to extremely light-weight, strong construction, were first exploited in passenger cars. The Edward G. Budd Manufacturing Company built a light-weight rail car, running on rubber tires, in the structure of which was employed an entirely new art of construction. This was developed to take advantage of the weight-saving possibilities of the non-corrosive and high-strength properties of stainless steel. Similar cars were bought by several steam railroads. In 1933 the Pullman Car & Manufacturing Corporation and the Pullman Company exhibited at the Century of Progress Exposition at Chicago a light-weight coach and a light-weight sleeping car of approximately standard dimensions, using the strong alloys of aluminum as the principal material of construction.

In two years these developments have evolved into the high-speed, streamlined, articulated trains, two of which, of aluminum construction, have been delivered to the Union Pacific and two more of which are now on order, and one of which, of stainless steel—the Burlington Zephyr—is in service on the Chicago, Burlington & Quincy, with two more on order. This year four other roads have followed with orders for special light-weight, articulated trains and orders have also been placed for light-weight coaches of more nearly standard dimensions.

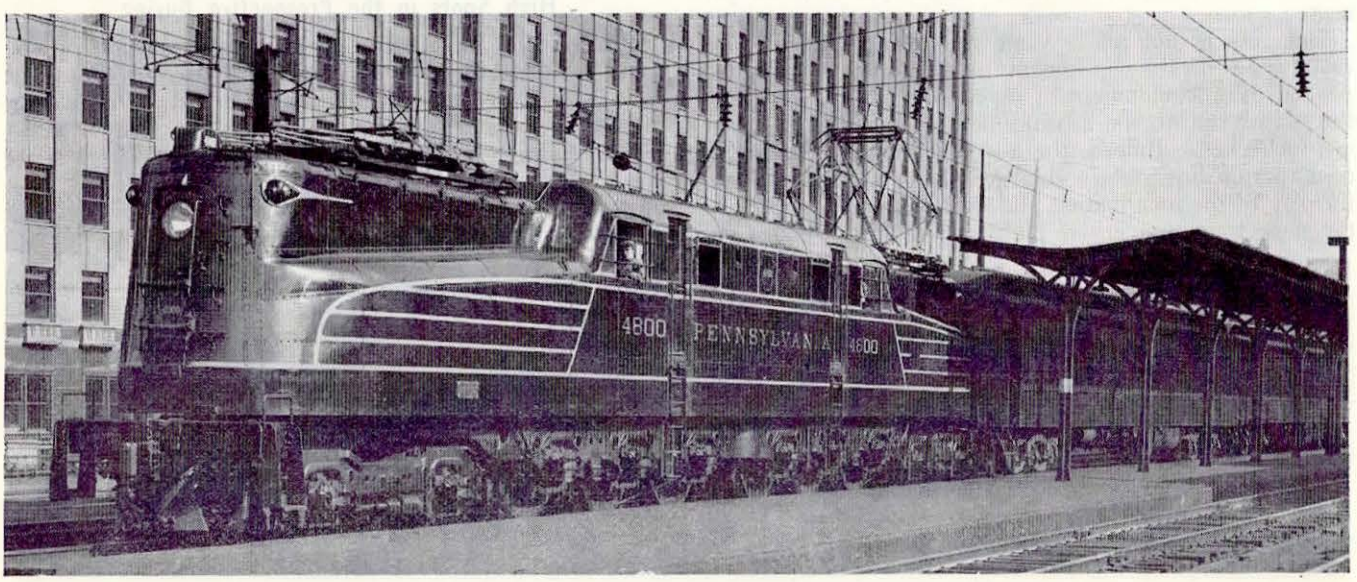
About 11 years ago the possibilities of the Diesel engine as a locomotive prime mover were first exploited in switching service. There are now some 150 Diesel-electric locomotives in switching service. These locomotives are mostly of 300 and 600-hp. capacity. The builders are now ready to undertake the construction of locomotives of sufficient capacity to justify their trial in road service. Several such locomotives of 1,800 hp. and one of 3,600 hp., in multiples of 900-hp. engine-generator sets, involving investments of about three times as much per horsepower as the steam locomotive, have recently been ordered for trial.

Such developments, taking place during the depression, are striking evidence of the progressive attitude of railway officers toward new types of facilities which promise improvements in the quality of the service or economy of operation.

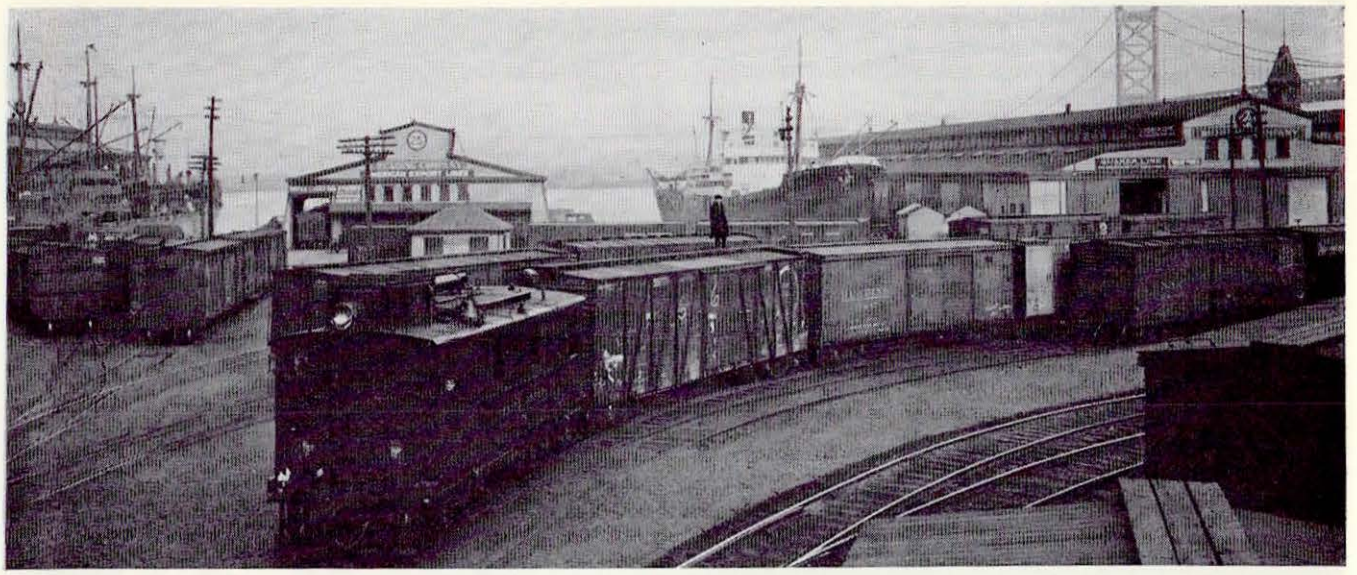
What the rehabilitation and improvement of the railways means to the durable goods industries is exemplified by the Pennsylvania electrification project. This big program, involving the expenditure of $108,000,000 for electrification, exclusive of terminal improvements, will provide a new form of motive power for 230 miles of line. While rehabilitation programs of this magnitude are not to be expected every day or on many railroads, there are needs for many new locomotives and new freight and passenger cars all over the United States which have been dammed up for the past four years and which will be translated into orders as fast as earnings supply the necessary credit.

Locomotives

The relatively small number of steam locomotives which have been ordered during the past seven years



The First of 57 New Electric Passenger Locomotives Which Are Part of the Pennsylvania Electrification Project



The Diesel-Electric Locomotive Has Proved Its Effectiveness in Switching Service—An Ingersoll-Rand, General-Electric Locomotive on the Reading

has caused a steady increase in the average age of the locomotives owned. A study of the locomotive inventory conducted by the Car Pooling Section of Federal Co-ordinator Eastman's organization as of October 1, 1933, indicates the average age of the 51,425 locomotives owned by the Class 1 railroads at that time as 20.7 years. Of the strictly modern types of road locomotives —those with four-wheel trailing trucks—there were only 1,046 locomotives, while of the four-, six- and eight-coupled road locomotives, without trailers, none of which is suitable for anything except light service and most of which are very inefficient according to modern standards, there were 18,048—more than 40 per cent of the total road locomotive inventory. These groups range in average age from 26 to 34 years. Of the 8,803 switching locomotives of various wheel arrangements the largest single group is the 0-6-0 type, of which there were 5,796. These locomotives average over 20 years of age.

There are two important groups of locomotives in freight service. These are the 2-8-2, of which there are 9,830, and the 2-10-2, of which there are 2,054. These represent the locomotives with which the bulk of main-line freight service is performed and their average age is 15.9 and 14.5 years, respectively.

While the rate at which the railroads have been installing new or rebuilt locomotives has been declining during the past four years with the decline in traffic and earnings, the retirements have continued without interruption. The result has been a steady decline in the total number of locomotives as well as in the aggregate tractive force, but the reduction has come from the groups of light locomotives of relatively little value and represents a cleaning up of the inventory. In the Co-ordinator's study just referred to the railways reported an additional 7,000 locomotives which were already scheduled for retirement between the time of the report and the end of 1938, to be taken largely from groups between 21 and 35 years of age. The trends with respect to installations, retirements, the total number of locomotives owned and aggregate tractive force are set forth in one of the tables.

In another table are certain facts bearing on the condition of the motive power at the present time. It is of interest to note that the total number of locomotives on the lines from which these reports are compiled was less as of October 1 this year than the locomotives actually in service at the beginning of 1928. It also shows a steady decline in the total reserve of motive power since the beginning of 1933 and an increasing proportion of the reserve locomotives which are awaiting repairs.

As business increases the railways will come into the market for locomotives of the modern types, particularly for main-line freight service and also for heavy passenger service. In the matter of freight service where modern locomotives have been installed during the depression they have replaced locomotives of the 2-8-2 and 2-10-2 types less than 20 years old. The relatively high horsepower capacity of the new locomo-

Changes in the Locomotive Inventory Since 1920, Class I Railways

Year	Installed	Retired	Total locos.	Aggregate tractive force (000,000)	Average tractive force
1920	1,017	1,254	64,746	2,341	36,365
1921	1,330	1,130	64,949	2,385	36,935
1922	1,226	1,682	64,512	2,401	37,441
1923	4,360	3,746	65,327	2,544	39,177
1924	2,787	2,529	65,358	2,593	39,891
1925	1,600	2,873	63,974	2,587	40,666
1926	1,882	3,105	62,761	2,611	41,886
1927	1,542	2,976	61,363	2,606	42,798
1928	1,017	3,047	59,470	2,580	43,838
1929	1,229	3,134	57,571	2,551	44,801
1930	1,160	2,204	56,582	2,527	45,225
1931	482	1,802	55,149	2,489	45,764
1932	477	2,316	53,316	2,430	46,299
1933	262	2,680	50,802	2,349	46,916
	20,371	34,478			

Motive-Power Conditions—Class I Railways

	1	2	3	4	5	6
	Locomotives on line	Locomotives awaiting repairs	Locomotives serviceable (1–2)	Locomotives stored serviceable	Locomotives in service (3–4)	Total reserve locomotives (2+4)
January 1						
1928	60,583	4,406	56,177	7,490	48,687	11,896
1929	58,422	4,380	54,042	6,482	47,560	10,862
1930	56,477	4,112	52,365	6,212	46,153	10,324
1931	55,184	5,216	48,654	9,716	38,938	14,932
1932	53,647	6,990	46,657	10,982	35,675	17,972
1933	51,724	9,558	42,166	9,387	32,779	18,945
1934	49,637	10,895	38,742	5,913	32,829	16,808
October 1						
1934	48,488	10,680	37,808	5,129	32,679	15,809

Photograph from Wide World

About to Depart for New York—The Union Pacific Articulated Aluminum-Alloy Train at La Salle St. Station, Chicago, on Its Recent Famous Transcontinental Run

tives permits them to meet the growing demands for higher speeds with heavy tonnage trains which the older locomotives cannot do effectively. They have demonstrated their ability to produce operating economies which have proved sufficient in some cases to pay for the new locomotives in a matter of three or four years.

The bulk of the active passenger locomotives are of the Pacific type, of which Mr. Eastman's study reported 5,528. This group of locomotives averages almost 19 years of age. The growing demand for longer, heavier trains in main-line through service, together with the pressure for faster schedules, is increasing the need for passenger locomotives of higher capacity. These are exemplified by the powerful, high-speed locomotives recently delivered to the Northern Pacific to handle heavy through passenger service on continuous runs of over 900 miles.

The replacement of the steam switching locomotives by Diesel-electric locomotives, to which reference has already been made, has been continuing throughout the depression and will undoubtedly be accelerated as improving credit permits more railroads to undertake major capital expenditures.

The Self-Propelled Car

No discussion of the future trend of motive power purchases is complete without reference to rail motor cars or light-weight self-propelled trains, such as those now owned by the Union Pacific and the Chicago, Burlington & Quincy. Rail motor cars of conventional construction and propelled by gas-electric power plants have been used in place of steam trains in local passenger service for the past ten years. They have effected reductions in train-mile costs amounting to about one-third, without, however, providing any improvement in service.

The new high-speed, articulated trains offer much the same possibilities for the reduction of out-of-pocket costs as the older cars, but their overall economy is somewhat reduced by the greater first cost. So far they have provided an element of novelty in the character of the service rendered and, by the improved schedules which they make possible, they will undoubtedly effect permanent improvements in service where conditions are favorable. As far as may be seen at the present time, however, these trains can only be applied where traffic conditions are sufficiently stable to be met by trains of inflexible consist. For more general light service there is a field for light-weight, rail motor cars propelled by Diesel-electric power plants to be operated with varying train consists.

The reduction in weight without sacrifice of strength which has become possible for new passenger cars, together with improvements in form to reduce air resistance, has not only increased the interest in Diesel-electric motive power for passenger service by reducing the horsepower capacity required, but has also aroused the interest of the builders of steam locomotives. The builders all have developed proposals for medium capacity locomotives, designed to operate at sustained speeds approaching 100 miles an hour. Where more than five or six cars are to be hauled such motive power, separate from the train itself, will be attractive. One road has already ordered two such high-speed steam locomotives.

Freight Cars

As in the case of locomotives, retirements have been kept up during the depression at a much higher rate than have the installations of new or rebuilt freight cars. The result has been a fairly sharp decline in the number of freight cars of railroad ownership and almost as great a decline in aggregate capacity. The reports to Co-ordinator Eastman as of July 1, 1933, indicate that further retirements of about 148,000 cars were on the program at that time for the years 1934 and 1935. These pro-

grams indicate a continuance of the process of cleaning up the inventory and have practically no relation to the attitude the railroads will take toward the purchase of new equipment when the demand for cars increases and adequate earnings permit the serious consideration of major capital expenditures.

New designs and new materials, which have entered the field during the depression, have materially changed the state of obsolescence of the present freight-car inventory of the railways. The new standard box car developed by the Car Construction Committee of the Mechanical Division of the then American Railway Association, in co-operation with a design committee of the American Railway Car Institute, has provided a car about 3,000 lb. lighter than those of equivalent capacity built from earlier designs. The possibility of further reductions in weight by the use of corrosion-resisting steels or aluminum alloys has also come into the picture and cars using these materials have been built for the purpose of determining the practicability of their use. This applies also to open-top cars in which U.S.S. Cor-Ten steel, a high-strength corrosion-resisting material, as well as aluminum alloys, have been utilized to effect an increase in the ratio of paying load to gross load from the customary 72 or 73 per cent to over 80 per cent. The possibilities of the Duryea cushion underframe and of improved truck springs, to reduce damaging shocks to lading are factors which will also influence the future trend of equipment construction.

Trend in Freight Car Ownership—Class I Railroads

Year	Installed	Retired	No. cars at end of year	Aggregate capacity
1925	139,083	128,573	2,357,221	105,569,670
1926	93,369	103,152	2,348,643	105,952,818
1927	73,254	96,991	2,324,799	105,845,568
1928	62,945	90,707	2,297,549	105,321,832
1929	94,946	115,869	2,277,464	105,410,586
1930	81,038	82,101	2,276,793	106,179,768
1931	14,910	82,828	2,201,407	103,421,700
1932	8,545	69,394	2,172,414	100,901,484
1933	6,428	117,273	2,061,233	96,734,269

The replies to Co-ordinator Eastman's freight-car questionnaire last year indicate that there were in service a year ago more than 600,000 cars equipped with arch-bar trucks which the railways have decreed should not be offered in interchange after January 1, 1936. About 367,000 of these cars are 21 years of age or more. Considering the advantages offered by new designs and new materials, it is doubtful whether any of these cars will again be rebuilt.

Not all of them will require rebuilding within the life permitted with the arch-bar trucks, but neither will they justify the expense of new trucks. Their replacement will undoubtedly be accelerated as it becomes possible for the railroads to undertake extensive capital outlays.

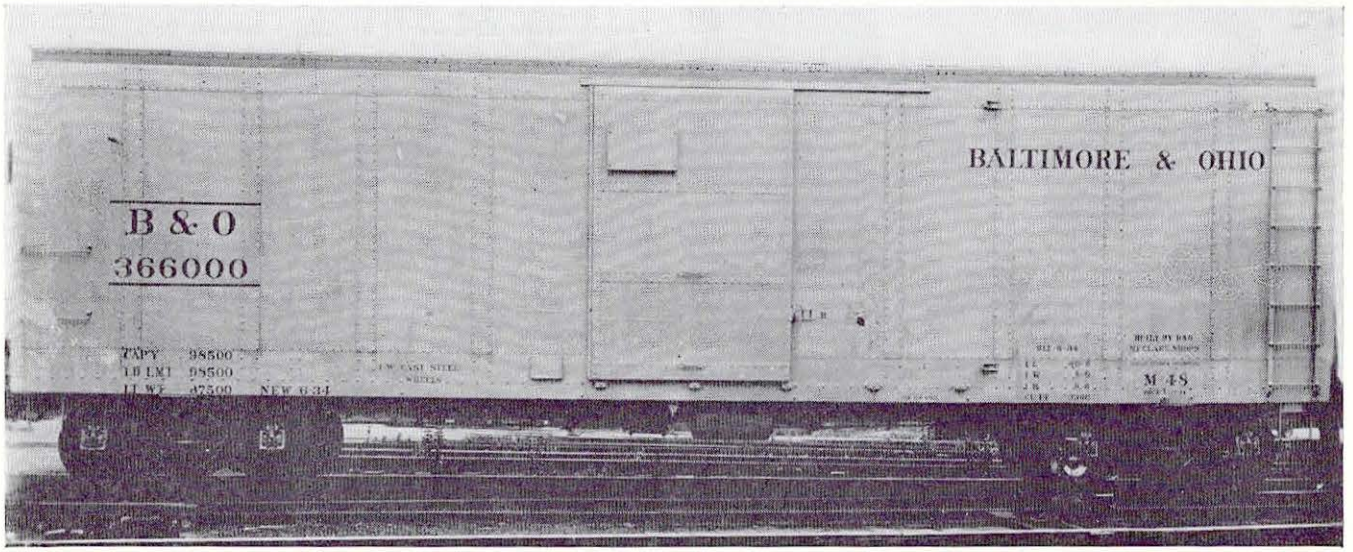
A factor of uncertain influence on the future purchase of freight cars is the recognized need for a simple and cheap means of road-rail transfer of merchandise shipments without the necessity of incurring the cost of freight handling between the road vehicle and the car. Several forms of demountable containers have been developed and are in service within restricted areas, but none is yet available for universal interchange.

From the railroad operating standpoint the ideal car is one which can be used for transporting all commodities. Then every car is alike, thus simplifying repairs, and there need be no empty-car movement beyond the necessary balancing movement in the direction of light traffic. Such a car, however, must be a compromise, if it were possible to produce it, and it would fail to meet the special needs of many commodities from the shipper's standpoint. So long as the purchase of transportation is made in a buyer's market, the railways will provide as many special types of cars as improve the character of the service for commodities the transportation of which they wish to retain.

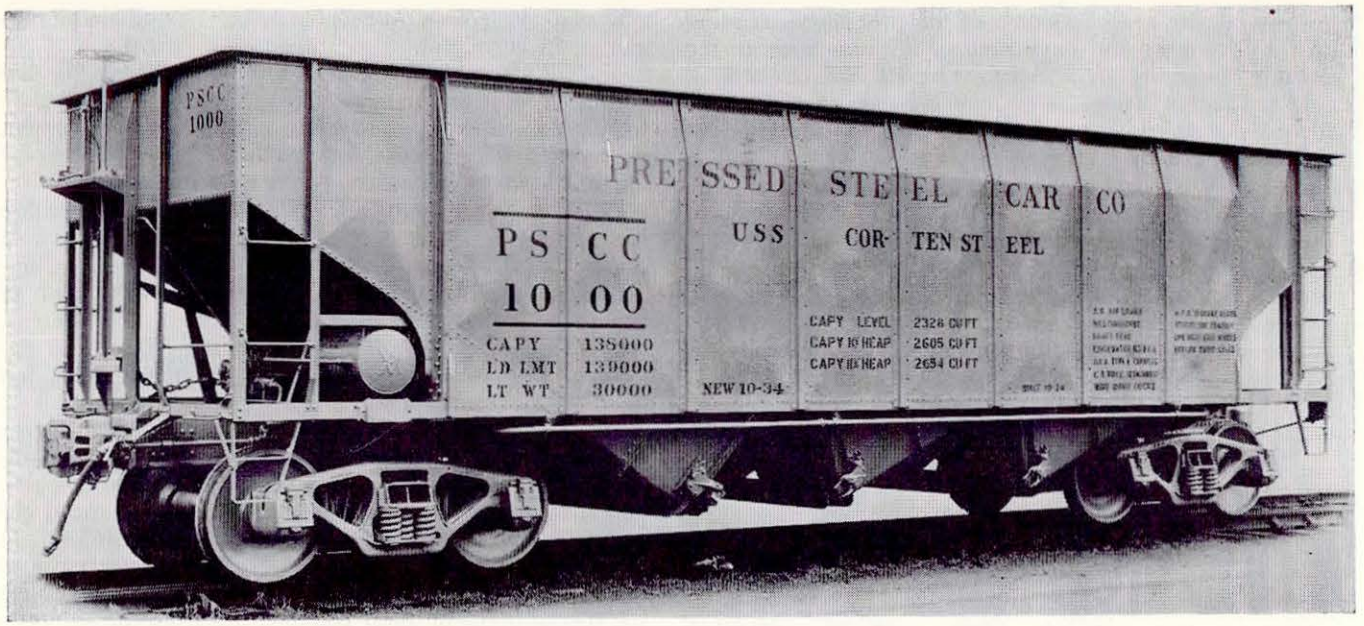
Passenger Cars

The factors affecting the purchase of passenger cars are somewhat different from those affecting motive power and rolling stock. Passenger revenues have been declining steadily since 1920 when they amounted to 1,289 million dollars. In 1929 they amounted to 874 million dollars and in 1933 they had gone down to 329 million dollars. The loss of business reflected in these figures, largely as the result of the competition of private automobiles, but increasingly as the result of bus transportation, has aroused the railways to a keen consciousness of the need to merchandise their service. This involves consideration both of price and quality.

The importance which elements of taste as well as of comfort have thus assumed are exemplified in the new high-speed, streamlined trains, in the recently announced program of the western railways calling for the air-conditioning of 2,500 passenger cars for the 1935 summer season, in the rehabilitation of existing passenger cars



A Box Car Built of the New Corrosion-Resisting Steel by the Baltimore & Ohio



A Hopper Car in Which the Use of New Material Has Reduced the Weight About Seven Tons

with new seats of more comfortable design, and in the consultation of artists and architects in connection with the fixing of exterior lines as well as of interior decorations.

There are 25,700 passenger-carrying cars of railroad ownership in addition to about 2,200 dining, parlor and sleeping cars, and over 9,000 Pullman cars, of which 5,000 are in use. How many of these cars will ultimately be air conditioned it would be difficult to say. The needs of the better trains, of the class already completely equipped on several roads, however, represent a demand about four times that already supplied and the field will probably expand somewhat as time goes on.

Much the same considerations apply to the fitting of more comfortable seats and better toilet and lavatory facilities in coaches as well as to their redecoration. Several roads have undertaken extensive programs of this kind, using P.W.A. funds, and a restoration of railway credit will bring others into the market.

Style Is a Big Factor in the Remodeling of Passenger Cars—A Recently Modernized Lounge Car of the Illinois Central

Many of the existing cars will never be modernized, but will be retired and replaced with cars of better construction and modern appointments. In round numbers, there were 25,700 coaches and passenger-carrying combination cars on the Class I railways at the end of 1933; 8,600 of these cars—about one-third—are of all-wood or steel-underframe and wood-superstructure construction. After several years of meager purchases a number of roads have come into the market with extensive orders for passenger coaches, employing P.W.A. funds to replace cars in these groups. A return of earnings and credit will cause them to be rapidly replaced.

Another general indication of the acuteness of the needs of the railways for expanded repair and rehabilitation programs, as well as for the purchase of new equipment, lies in the fact that 14 railways have spent about $30,000,000 of money borrowed from the P.W.A. to make heavy repairs and modernize some of the accumulation of worn-out locomotives and rolling stock, and eight of these same roads used an additional $28,000,000 of P.W.A. money for the purchase of new locomotives, freight cars and passenger equipment.

Passenger-Train Cars Owned by Class I Railways December 31, 1933

	Total	All-steel	Wood and steel underframe
Coaches	21,729	14,904	6,825
Comb. pass.	3,973	2,167	1,806
Other comb.	2,959	2,099	860
Dining	1,624	1,358	266
Parlor	464	297	167
Sleeping	192	160	32
Bagg.-express	11,215	6,520	4,695
Postal	947	902	43
Other pass.-train cars	3,407	340	3,067
Total	46,510	28,747	17,763

Shop Machinery

Before the depression the railroads spent between seven and twelve million dollars annually for machine

tools and shop equipment to supply the needs of the many locomotive and car-repair shops throughout the country. Since 1929, due to the necessity of curtailing expenditures as a result of traffic decreases, there has been an almost complete cessation of purchases of this type of equipment. During the past four years the drastic retrenchments that have been necessary have resulted in reorganization of maintenance facilities and have caused most roads, the larger ones at least, to concentrate their repair operations at the large, centrally located shops where the more modern facilities have enabled them to perform the work at the lowest possible cost. Because of this concentration the value of modern tools has been forcibly demonstrated.

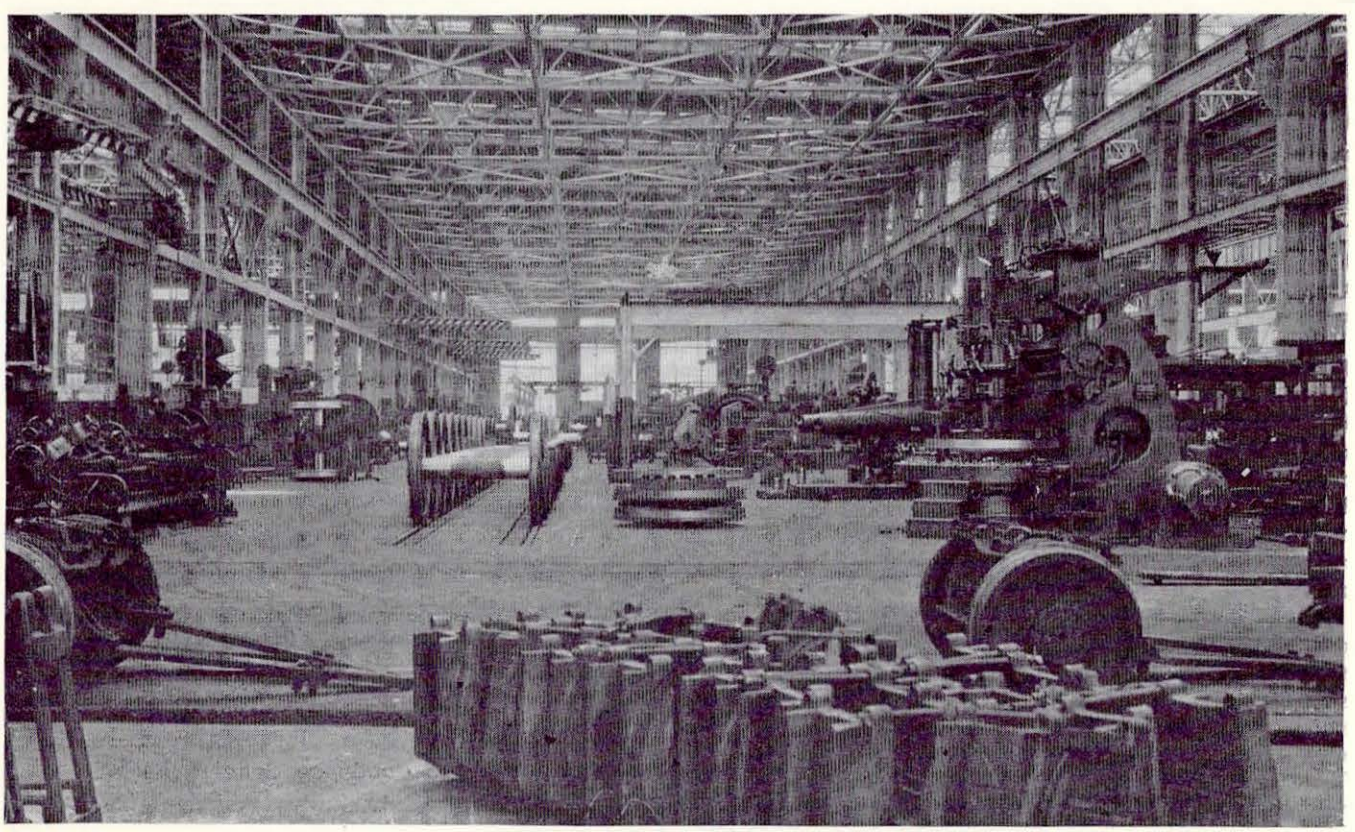
During the past two years mechanical officers have undoubtedly given more specific thought to the relation of machine tools and shop equipment to the maintenance-of-equipment problem than at any time in the last decade and the results of their investigations have convinced most of them that, when funds are available, substantial economies may be effected by the replacement of the shop equipment that is now obsolete.

During the 10-year period ended with 1929 the Class I railroads expended an average of 400 million dollars a year on locomotive repairs alone—the largest single account of railway operating expenses—and it has been estimated that modern shop equipment could effect a reduction in this expense of from 10 to 15 million dollars annually.

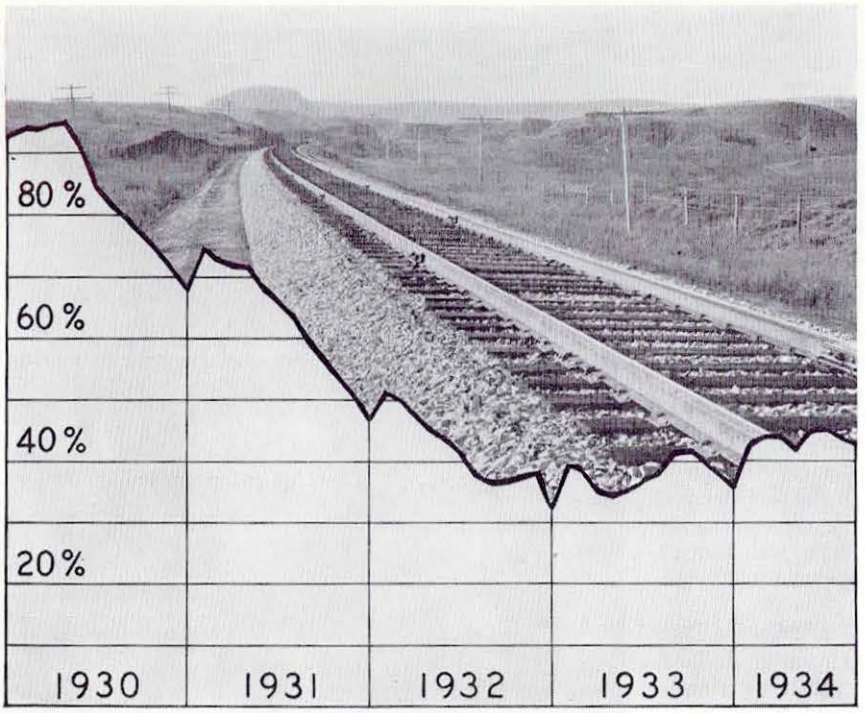
A Commuters' Club Car on the New York, New Haven & Hartford—The Air-Conditioning Unit May Be Seen in the Clerestory at the Center of the Car

Conclusion

During the four years of the depression there has been a general suspension of the purchase of motive power, rolling stock and shop machinery. During this period new materials of construction, better designs and new conceptions of service have accelerated the growth of obsolescence of the existing equipment. That the railways are alive to the importance of these developments and will take full advantage of them when earnings permit the serious consideration of major expenditures on capital account is evident from the attitude toward air conditioning and the disposition to undertake trials of new forms of equipment, even during the years of the depression.



Shop Improvement Programs Are Necessary to Hold Repair Costs Under Control



How Monthly Expenditures for Maintenance of Way and Structures During the Last Five Years Compare with the Average Outlays for the Corresponding Months in the Five Years, 1925 to 1929, Inclusive

Failure of maintenance program to keep pace with rate of deterioration and curtailment of improvement projects have created urgent need for rehabilitation

Prospective Expenditures on Roadway and Structures

A STATISTICAL analysis of maintenance of way operations during the years 1930-33, inclusive, provided the basis for the statement in the *Railway Age* of October 28, 1933,* that it would require an expenditure of about $700,000,000 to restore the fixed properties of the railroads to the high standard of physical condition that prevailed in 1929. No facts have been developed since that time which point to the need for a revision of that figure, except for such adjustment as might well be made to take into account further deficiencies accruing during the last year.

However, retrenchment during the depression has been confined by no means to a curtailment of the outlay for maintenance, for it is disclosed also in the decline in the expenditures for additions and betterments. The net capital charges for improvements to the fixed properties in the four years 1930 to 1933, inclusive, were less by a billion dollars than the corresponding charges for the four years 1926 to 1929, while the charges to capital account in 1933 represented only one-tenth of the annual averages for the five years 1925 to 1929, inclusive.

Much has been said and written during the last year concerning the marked increase in the efficiency of maintenance of way practice during the depression period, some of these expositions going so far as to intimate that much that was done during the prosperous "twenties" was economically unwarranted, if not actually wasteful. That the maintenance of way forces of the railroads have been able to keep the properties in a safe and usable condition in spite of drastic cuts in both labor and material allotments is a record of outstanding accomplishment that no one will dispute. But instead of serving to depreciate the policies and practices of the period ending with 1929, it provides a convincing demonstration of the high order of administrative skill with which the railways were managed during those prosperous times. The

Every advance in the art of transportation, every improvement in engineering technic and every change in the channels of trade take their toll from the usefulness, effectiveness and efficiency of some unit or units of the railway plant, and unless these units are replaced by others better devised to meet current needs, the plant will soon be reduced to a state of hopeless impotence. Keenly aware of this, railway management awaits portents of restored revenues that will warrant the initiation of vast programs for improvements as well as for the replacements so sorely needed to make good the deficiencies of the protracted period of under maintenance.

* Railroads Far Behind in Maintenance of Tracks and Structures, page 608.

maintenance record since 1929 has been possible only because of the reserve strength that was built into the properties during the preceding era. Skill in the conduct of maintenance work during the last four years has been manifested primarily in the gradual withdrawal of that strength without exceeding the margin of safety and, in most cases, without resorting to methods that will make reparation unduly expensive, compared with the cost of a more orderly program of upkeep.

As shown in the table of expenditures for maintenance of way and structures of Class I railroads, as well as the chart of monthly expenditures expressed as percentages of the monthly averages, 1925-29, maintenance of way expenditures have increased relatively since April, 1933, when the outlay represented only 34.2 per cent of the monthly averages for 1925-29. For the month of July, 1934, the corresponding figure was 45 per cent, the highest since March, 1932.

Expenditures for Maintenance of Way and Structures, Class I Railways

Average 1925-1929, inclusive	$849,021,000
1930	705,471,000
1931	530,613,000
1932	351,077,000
1933	322,286,000
1934 (Estimated)	370,000,000

For a number of months, following the late fall of 1933, maintenance of way activities were affected favorably by the stimulus of the government's PWA loans that were the means through which orders were placed for about half of the 800,000 tons of rail purchased since that time, and which enabled a number of roads to expand their maintenance budgets. However, owing to the curtailment of activities during the second half of the year, the total expenditure of Class I railways for 1934 will probably not exceed $370,000,000, or only about $48,000,000 more than for 1933. As a consequence, the expenditures in 1934 have not been sufficient to make good the wear and tear due to traffic or the loss of service life due to natural causes, and the accumulation of deferred maintenance has increased rather than decreased during the present year.

Deficiencies in expenditures for maintenance are not proportionately the same for all component parts of the properties. Some items have received relatively more attention than others, the factors of usability and safety receiving primary consideration. No figures are yet available on the breakdown into the various maintenance of way accounts for 1934; nor are more than approximate figures to be had on the volume of materials used. But it is possible to analyze the status with respect to a few items to an extent that will bear out the general trend, as expressed in the dollars spent.

Crossties Applied in Renewals

Date	All	Treated	Per Cent of Treated Ties
1920	86,829,307		
1921	86,521,556		
1922	86,641,834		
1923	84,434,985		
1924	83,073,059		
1925	82,716,674		
1926	80,745,509	55,557,706	68.8
1927	78,340,182	57,082,993	73.0
1928	77,370,491	59,157,540	75.5
1929	74,679,375	59,047,380	79.1
1930	63,353,828	49,720,080	78.5
1931	51,501,659	39,827,791	77.3
1932	39,190,213	29,435,055	75.2
1933	37,295,716	26,339,516	70.8
1934	50,000,000*		

* Estimated.

The laying of some 750,000 tons of new rail in 1934, compared with 403,254 tons in 1932, and 394,536 tons in 1933, represents a marked step forward, but it is doubtful if the laying of 750,000 tons of rail in 1934 comprises a rate of renewal sufficient to keep pace with the rate of depreciation, even after making due allowance for the greater life now being obtained as the result of modern methods of conservation. It would appear, therefore, that it will still require the laying of at least 3,500,000 tons of rail to obtain a rail condition equivalent to that which prevailed in 1929.

Tie Renewals More than a Year Behind

The impetus of greater expenditures for maintenance of way during 1934 is reflected also in tie renewals. Based on a comparison of expenditures for ties by a representative group of railroads during the first eight months of 1932 and 1933, it is estimated that about 50 million crossties were installed in 1934, compared with 37 million in 1933. While this represents an increase of 13 million ties, it would appear from a study of tie renewals that the replacements in 1934 were still at least 10 million short of the number required to meet the annual rate of deterioration. This means a deficiency in tie renewals at the present time of about 85 million ties, or expressed in another way—it would be necessary for the railways to renew 85 million ties during 1935, over and above the normal requirements of that year, to attain an average tie condition equal to that which prevailed in 1929.

Another disturbing factor in connection with progress in tie renewals is the decline in the use of treated ties. Whereas 79.1 per cent of all ties applied in replacement by Class I roads in 1929 were treated, the proportion of treated ties had fallen to 75.2 per cent in 1932, and to 70.8 percent in 1933. While this will have no immediate effect on renewal requirements, it will serve to increase the renewal rate within five or six years.

Are the Tracks Safe?

Frequent reference has been made to the excellent record that has been maintained for the safety of tracks and structures in spite of the curtailment of expenditures for upkeep. That the record is a good one is shown in the table of train accidents resulting from defects or improper maintenance of way and structures for the years 1925 to 1933, inclusive, as compiled from I. C. C. Accident Bulletins 94 to 102, inclusive. As shown by this table, there has been a progressive decline in accidents from year to year, not only as to the total, but also as to the several classifications, except in the cases of "Bridges" and "Signals" in which groups the number is so small that the element of chance exerts a larger influence.

Train Accidents Ascribed to Defects In or Improper Maintenance of Way and Structures

Year	Bridges	Ties and Tie Plates	Rails and Rail Joints	Frogs and Switches	Interlocking and Block Signals	Miscellaneous	Total
1925	10	427	1052	563	4	1207	3263
1926	10	362	1037	619	7	1256	3291
1927	6	236	823	527	3	1121	2716
1928	9	197	744	435	5	822	2212
1929	7	147	686	470	4	781	2095
1930	7	86	468	300	11	509	1381
1931	3	47	343	243	0	275	911
1932	4	44	275	153	4	187	667
1933	3	39	265	138	1	210	656

However, because of the obvious influence of the volume of traffic on the frequency of accidents, a true measure of the accident record is obtained only by comparing

it with the number of chances for train accidents offered, or in other words, with the locomotive miles (plus motor train-miles) run. This comparison is shown in the table below:

Year	Train Accidents Ascribed to defects in Tracks and Structures, per Billion Locomotive Miles
1925	1,925
1926	1,850
1927	1,571
1928	1,303
1929	1,209
1930	892
1931	698
1932	603
1933	607

As will be observed from this table, there was a progressive improvement in the accident record from 1925 to 1932, each year showing a markedly better record than the preceding year, but that this improvement stopped with 1932. The result in 1933 was actually less favorable.

While lack of a similar breakdown of the causes of accidents that have occurred in 1934 precludes an extension of this comparison into the present year, it is possible to approximate the trend by comparing the number of derailments (from all causes) for the first six months of 1934, with those occurring in the six months periods of previous years, as has been done in the table below:

Period	Derailments per Billion Locomotive Miles
First Half 1929	5,830
Second Half 1929	5,600
First Half 1930	4,920
Second Half 1930	4,090
First Half 1931	3,700
Second Half 1931	3,190
First Half 1932	3,060
Second Half 1932	2,910
First Half 1933	3,010
Second Half 1933	3,350
First Half 1934	3,360

While these figures are not strictly comparable with those given in the first table, they illustrate the same general trend, namely, a marked decline of the accident ratio until the first half of 1932, but with a definite upturn in derailments for the three subsequent periods. It may be contended that these studies will have to be carried over a longer period to warrant positive conclusions, but it must be conceded that they indicate a trend that should give cause for concern. Since 1925 the railways have been engaged in a well-directed movement to reduce accidents and there is no evidence of any lessening of the interest or enthusiasm in this campaign. Moreover, reductions in force have introduced a personal equation that is favorable to increased safety since it is the older and more experienced employees that have been retained in service.

In view of these factors, an increase in train accidents ascribed to defects in or inadequate maintenance of tracks and structures must be accounted for by deficiencies in maintenance expenditures. In some measure, these are reflected by inadequacy of supervision, inspection and patrolling. But, in the main, there is a need for greater expenditures for the replacement of rails, ties, tie plates, track fastenings, frogs, crossings, switches and switch stands, the condition of which bears a primary relation to the safety of train operation.

It is true that these items of the fixed properties have received primary attention during the depression years, but this has been confined, in so far as possible, to expedients designed to insure usability and safety at a minimum out-of-pocket expense. Prolongation of service life though the agency of repairs has been carried much further than had hitherto been deemed economical in the long run. Such operations as ballasting, ditching, drainage work, and the like, have been avoided except in cases where the return in the form of lower expenses for track upkeep would be realized within a very short time.

Further than this, there has been an almost complete cessation of the improvements in roadbed and track carried on so extensively during the "twenties," the initiation of which was predicated on the longer look forward. Projects under this head include the widening of roadbeds, drainage that will insure greater stability, heavy beds of ballast, a better tie condition, better track fastenings and heavier rail, all for the purpose of reducing to a minimum the expense for current upkeep, affording greater insurance against interruptions to service by reason of exceptional storm conditions, and minimizing the need for patrolling. During the last four years lack of funds has compelled the railway track forces to operate on a hand-to-mouth basis, and even if they can continue to do so without increasing the hazards of handling traffic, which is doubtful, it is certain that the cost of maintaining tracks will be materially increased unless large expenditures are made for major renewals and for a program of progressive improvement.

Bridges and Buildings

This same tendency is to be observed in the policies pursued in the maintenance of bridges. In general, work has been confined to such measures as are necessary to insure safety for the least expenditure, and not infrequently this has been carried to the point where the expense for repairs exceeds the carrying charges on a new structure. Bridge maintenance is influenced but little by use. Variations in the volume of traffic handled have little effect on the rate of deterioration that gives rise to expenditures for upkeep. In spite of this, however, the Class I railways spent only $26,000,00 in 1931 and about $14,000,000 each in 1932 and 1933 for the maintenance of bridges, culverts and elevated structures, compared with an average of $47,402,000 in the five years, 1925-29. The discrepancy represents the amount that will have to be spent eventually for heavy repairs and for the operating charges incidental to the replacement of old structures that have outlived their economic usefulness.

The work of maintaining buildings consists almost entirely in making good the ravages wrought by the elements. Except for the floors of freight houses and platforms, use exerts little effect. Notwithstanding this, the Class I railroads, which expended an average of $79,000,000 a year on the maintenance of buildings of all classes from 1925 to 1929, spent only $43,000,000 in 1931, $28,000,000 in 1932, and $25,000,000 in 1933. True, the expenditures in the years prior to 1930 included charges for the retirement of many buildings replaced by new structures, and the outlay during the last four years has been reduced by discontinuing the upkeep of buildings that have been abandoned. But liberal adjustments for these factors will still leave an enormous sum in the form of an accrued deficiency in building maintenance.

In the case of water service, maintenance charges during the last three years have averaged little more than one-third of the normal annual outlay of $10,444,000 during the five years ending with 1929. Some savings have accrued from the reduction in the demand for water, resulting in reduced wear and tear on pumps and permitting certain units to be taken out of service, but in a large measure, the savings have been effected by restricting upkeep to such work as will insure reliability of sup-

ply for present needs, with but small reserve to meet unlooked-for demands.

The discussion thus far has been confined strictly to the deficiencies in the expenditures for upkeep, which, as stated at the outset, aggregate at least $700,000,000. However, it is necessary to bear in mind that this period of low maintenance expenditures has also been one of minimum outlay for additions and betterments. Obviously, properties possessing enormous surplus capacities do not offer much incentive for investments in new lines, additional main tracks, larger yards or new freight or passenger stations, in so far as they can bear any relation to the needs of heavier traffic. But there is an enormous pent-up demand for improvements that will reduce the cost of operating and maintaining the properties.

Under this head the field for improvements in track and roadway have been touched on. The impetus given to railway research will undoubtedly result in the development of many opportunities for betterments that will result in lower costs of upkeep. Bridges are constantly completing their life cycles and each structure, as it comes up for renewal, presents the problem of its replacement in kind, or in a more permanent form.

All Practices Being Observed Critically

Railway transportation is in a state of flux. At no time in the history of this industry have policies and practices been subjected to such critical analysis. Innovations of many kinds are being put to test, and thus far at least, two, namely, storedoor delivery and the higher speed trains, bid fair to effect revolutionary changes that will call for physical betterments of an extended character. Preparation for the operation of high-speed trains on two routes has already been responsible for sizeable expenditures for refinements in line and surface. Storedoor delivery, or a more effective co-ordination of railway and highway transport, will probably result eventually in the abandonment of many of the smaller railway freight stations, but will give rise at the same time to a revamping of the stations at the points of transfer from trucks to freight cars, and vice versa.

But the needs for additions and betterments to the fixed properties are by no means confined to such as have a bearing on developments of an extraordinary character. The award of a $1,550,000 contract within the last six weeks for a car dumper installation for the transfer of coal from cars to lake boats is illustrative of the type of improvement work which the railways must carry on to insure expeditious movement of traffic.

Another class of improvement work that will be resumed on a large scale relates to additions and betterments to the facilities for the maintenance and servicing of cars and locomotives. Some measure of the prospective needs in this field with an upturn in traffic is indicated by the improvements undertaken to meet the limited demands of the current year. Thus, during the present year contracts have been awarded for 12 coaling stations and several large water treating plants, while practice in the roadside treatment of water has been greatly expanded. One railroad, also, has extended the stalls of a number of enginehouses to meet the requirements of larger locomotives. The modernization of water station pumping equipment has continued on a small scale, but in a volume that is inconsiderable compared with the opportunities for economies that can be realized in the way of reduced expenditures for power and attendance. The widespread drought throughout the middle west has disclosed the weak links in the water-service chain, and these must be strengthened by the development of more adequate supplies in many locations.

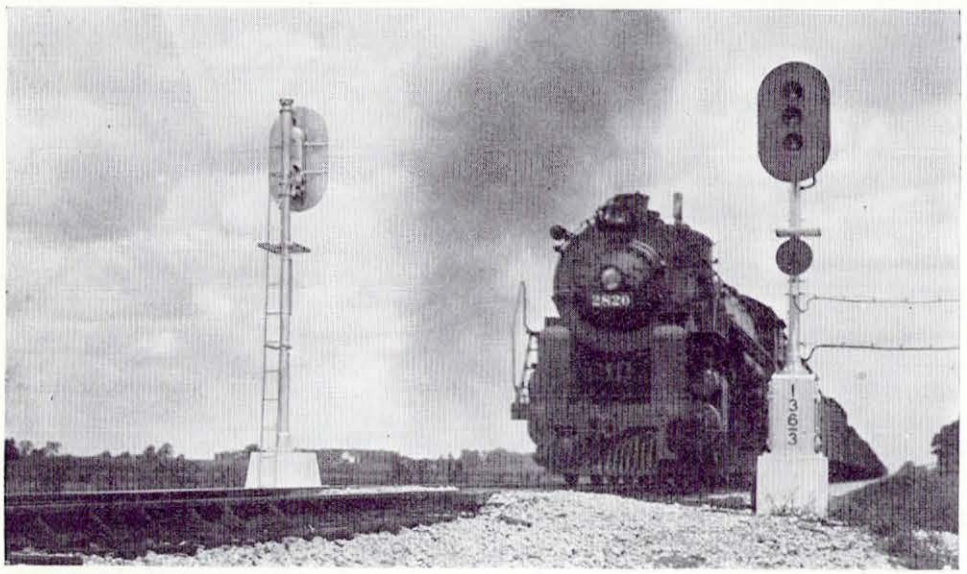
While it is evident that the rehabilitation of the fixed properties will demand the purchase of materials as diversified as rails and paint, culvert pipe and pumps, switch stands and shingles—the list could be extended indefinitely—a corresponding need has been developed in the field of tools and appliances employed in the application and repair of materials that go into the properties. The five year period, 1925 to 1929, was marked by the extensive application of power tools and equipment to maintenance of way operations, as indicated by net capital charges averaging $10,848,953 annually for roadway machines, roadway tools and work equipment. This trend was retarded in a measure during 1930, when the corresponding charges aggregated $6,918,045, but in 1931 the purchasing of such equipment had been reduced to $1,938,368, while in 1932 the credits for equipment retired so far exceeded the volume of purchases as to leave a net credit of $2,688,316.

Another comparison is afforded by the expenditures for the maintenance of such equipment (including the charges for units bought for replacements). These averaged $43,687,000 annually for the five years 1925-29, whereas they totaled $35,876,000 in 1930, $23,876,000 in 1931, $12,872,000 in 1932 and $12,944,000 in 1933. It may be argued that with a marked falling off in use by reason of curtailed operations, there would be a corresponding decrease in wear and tear and therefore a lessened need for repairs and replacements of equipment. But the decrease in the maintenance of work equipment exceeded the decrease in the magnitude of the operations, for whereas the maintenance of way expenditures in 1930, 1931, 1932 and 1933 amounted to 83 per cent, 63 per cent, 41 per cent and 38 per cent, respectively, of the average expenditures during the five years 1925-29, the charges for the maintenance and replacements of roadway machines, tools and work equipment during the same period represented 82 per cent, 55 per cent, 29 per cent and 29 per cent, respectively, of the corresponding expenditures during the five-year period. This analysis takes no account of the element of obsolescence which arises from the rapid development that has taken place in equipment of the type employed in maintenance of way during the decade that has embraced its introduction and extensive application.

The fixed properties of the railways embrace a wide variety of engineering works assigned to equally diversified services. Every advance in the art of transportation, every improvement in construction practice and every change in the channels of trade take their toll from the usefulness, effectiveness and efficiency of some unit or units of this great railway plant, and unless these units are replaced by others, better devised to meet current needs, the plant will soon degenerate to a state of hopeless impotence.

Obviously, railway managements are keenly aware of this, and await portents of a recovery of traffic that will warrant the initiation of programs for betterments as well as for the replacements so sorely needed to make good the deficiencies of the protracted period of under maintenance. They stand ready to authorize greatly expanded expenditures for track and roadway materials of all kinds; for steel, timber, and concrete materials for bridges, culverts and buildings; for the various materials and equipment required for the improvement of water stations; for new coaling stations and cinder plants; for the many specialized accessory products that enter into their many classes of fixed properties; and, in addition, they will resume their programs for the mechanization of roadway and structures' work, which will entail not only the purchase of new machinery but also the extensive replacement of worn and obsolete units.

Prospective Expenditures — Signaling



Modern Automatic Signals Permit Higher Train Speed With Safety

Expenditures for new facilities and for taking up deferred maintenance will aid roads in speeding up trains

IF funds were available, the railways could spend at least $20,000,000 annually for the next several years for new signaling facilities, with resulting economy and improvement in train service. They should also spend $10,000,000 annually during the same period to make good the deferred maintenance, in order to insure the dependability of signaling performance that today's exacting schedules require and tomorrow's still faster schedules will make imperative.

Higher average train speeds between terminals can be effected in two ways: By running the trains faster and by reducing or eliminating delays. For both of these objectives, signaling has much to offer. The maximum attainable speed depends, of course, on the character of the locomotives and cars and the tracks over which they operate. However, the proportion of the time on road, during which it is practicable for a train to maintain the maximum permissible speed, is dependent also on the operation of other trains in the vicinity at the time of its passing; signaling plays an important part in coordinating and protecting train operation under such circumstances.

Direction of Train Movements by Signal Indication Under Centralized Control Increases Track Capacity

While the Train Is in Motion

Once a train is out on the line and has attained its maximum permissible speed, it is desirable that it continue at the highest speed consistent with safety. The spacing distance of automatic block signals is based on the braking distance required to stop a train. Higher speeds and longer trains result in longer braking distances. The new light-weight high-speed trains are being equipped with special braking apparatus designed to stop, from speeds in excess of 100 m.p.h., within a distance not exceeding that required for passenger trains, using ordinary equipment, from speeds of about 70 m.p.h. Whether this result can be obtained uniformly under regular operating conditions remains to be seen. Furthermore, on many roads the speed of passenger trains, using ordinary equipment, is rapidly being increased. Likewise, longer and faster freight trains are the order of the day and braking distances required for such trains increase at a greater ratio than the speed.

These increases in the required braking distance must be met with changes in the signaling to afford safety of operation. If the blocks are lengthened, the track capacity is reduced, because trains must be spaced further apart and must run too far under the caution indication, when approaching an interlocking or when closing up on a train that is just getting into the clear. Therefore, in many cases, the automatic blocks must be respaced and new signals with four aspects must be installed. This means that the signaling on thousands of miles of line

must be relocated and reconstructed if the most efficient and economical operation is to be attained. On much of this mileage old semaphore or even more antiquated disk signals are still in service, and they should be replaced with modern efficient light signals. That such a change contributes to improved train operation is shown by a study made by one road with an extensive mileage of well-maintained signals, which found that train detentions due to signal failures are twice as numerous on semaphore territories as on those equipped with light signals. When rehabilitating a signal system it is likewise logical to replace the relays and other accessories with modern efficient instruments which will pay for themselves in power savings alone, as well as provide safer operation. The respacing of signals also requires an entirely new system of wiring.

The majority of train delays and accidents attributable to fogs can be prevented by continuously-controlled cab signaling. On lines near the seacoast, along lakes or rivers and in other locations, where storms or fogs frequently obscure the engineman's view of wayside signals, as well as of trains ahead, if the engineman reduces speed to locate the signals and ascertain the aspects, all trains are delayed and schedules disrupted; otherwise accidents occur. For this reason, cab signaling is necessary on hundreds of miles of the more important main lines if the railroads are to render consistently on-time performance with safety.

Getting Other Trains Out of the Way

The old idea of clearing the main line 30 minutes ahead of limited passenger trains is no longer practicable when freight is scheduled for first-morning delivery in distant cities. Especially on single-track lines, the solution of this problem lies in the installation of centralized traffic control, including the power operation of passing track switches and controlled signals for the direction of train movements by signal indication without the delays occasioned by train-order operation. On several installations of this character now in service the average freight train time has been reduced about 1.8 min. for each mile equipped. In other words, the average road time on a 100-mile run can be reduced approximately three hours. Furthermore, the use of automatic signaling and centralized traffic control for directing train movements so increases the capacity of a single-track line that it is frequently possible to defer the construction of a second track, while in some instances sections of second track already built have been removed, thereby eliminating the necessity for maintenance, estimated in one case to be $1,000 annually for each track mile.

New developments in signaling facilities offer a fertile field for capital expenditures that will afford large returns in the form of operating economies or greater expedition in the movement of traffic. The operation of trains by signal indication, with power-operated passing-track switches, will reduce delays on the road, while car retarders with power switches will expedite the classification of cars in yards. Increased track capacity and higher average train speeds can be obtained more economically by installing such signal facilities than by any other means. Appropriations for such improvements, amounting to at least $20,000,000 annually over a five-year period, will yield large returns, while an annual outlay of $10,000,000 is needed to make good the accrued deficiencies in signal maintenance.

Likewise, on multiple-track lines an important advantage of centralized traffic control is that it enables trains to be run in either direction on any track, thereby permitting one train to be run around another while all trains are kept moving, rather than forcing "Extra 44" to lay on a siding for 40 minutes for "No. 1" to pass. Especially on districts where the preponderance of traffic is in one direction during certain periods of the day, either-direction operation under C.T.C. increases track capacity as well as average train speeds, as has been proved on such installations as that on the Boston & Maine between Fitchburg, Mass., and Hoosac tunnel, which includes 54 miles of double track on which trains are operated in either direction on each track, with 3 miles of three-track line using either-direction operation on two tracks and 5.7 miles of three track with either-direction operation on one track.

Other than stopping a train to tell it to proceed, as is required in the train-order system of operation, the next most obviously unnecessary delay is the "know nothing" stop and whistle at a railroad crossing. At such a crossing, the installation of an automatic interlocking will eliminate the necessity for stopping most of the trains and will pay for itself in the savings effected by keeping the trains moving. As an example, the Santa Fe installed an automatic interlocking at Marion, Kan., at a

Delays in Classification Yards Can Be Reduced by Car Retarder and Flood-Lighting So That Peak Capacity Is Available at All Times

cost of $8,703, by means of which an annual net saving of $15,088 was effected, based on an average of $2 saved for each of 8,000 train stops. Furthermore, a large percentage of the mechanical interlockings in service at outlying crossings or junctions can be replaced by automatic interlockings with economy, as, for example, at the Rock Island-Missouri Pacific crossing at Pleasant Hill, Mo., where a mechanical plant was replaced by an automatic interlocking at a cost of $5,500, and a net annual saving of $4,500 was effected in operating expenses.

Quicker Freight Classification

The best of efforts to get a freight train over the road are often defeated by yard delays. Here again signaling offers practical assistance through power-operated switches and retarders for classification yards. With such facilities, maximum peak capacity can be attained at all hours, regardless of the weather. The more prompt classification of cars for departing road trains or for delivery to industries is the result.

In addition, car retarders also reduce operating expenses by eliminating car riders and switchmen, as well as reducing the number of yard engines required. In one yard which handled 2,750 cars daily, operating costs were reduced from 43 cents to 18 cents per car, saving $200,000 annually, a return of 40 per cent on the investment for the retarder installation. With 35 classification yards now equipped with retarders, adequate information is available to prove the desirability of providing such facilities in not only many of the larger hump yards, but also in smaller yards now operated with flat switching.

Thus it may be seen that these newer developments, such as cab signaling, centralized control, automatic interlocking and car retarders, which were brought out during the "twenties," and installed only where their need was most obvious, are now available in perfected form. The railroads need these facilities and know that in many instances increased track capacity and higher train speeds can be obtained more economically by installing such signaling facilities than by any other means. Hundreds of cases can be cited in which investigations have been made and plans drawn of proposed installations which are economically justified, even under present-day traffic conditions.

However, during the last few years, railroad earnings have been so reduced by loss of traffic to unregulated competitors that they have not been sufficient to provide funds for these needed improvements, or to maintain the credit of the railroads so as to permit them to borrow the money required. These conditions must be corrected before the railways can provide the facilities essential to the better and faster service required to meet the needs of the business world and the growth in population of the country.

The Maintenance Deficiency

In addition to the approximate $20,000,000 that should be spent annually for the next several years by the railroads to provide modern signaling facilities, they should spend at least $10,000,000 annually during the same period to make good the deferred maintenance which has accumulated during the last five years. In 1929 the Class I roads spent $35,140,858 for materials and labor for the maintenance of signals and interlockers, while during the six years from 1924 to 1929, inclusive, charges to this account averaged $32,281,366. In 1931, this expense dropped to $25,277,833, in 1932 to $16,771,739 and in 1933 to $14,536,418. These reductions have been effected largely by deferring painting and normal repairs. Wearing parts, such as cranks and pins, have been left in service beyond limits ordinarily permitted. Insulated wires and cables, especially those run underground, have passed their normal life. Storage batteries have been "marathoned" to the limit. Lightning arresters, rail bonds and other accessories have been neglected until they are in need of extensive replacements.

Likewise, reductions have been made in the number of maintainers and in the hours worked, not only by practically eliminating repairs and replacements, but also by a curtailment of inspections normally made for the purpose of detecting defects before they cause failures. Of course, the fundamental principle of the design of all signaling apparatus is that a failure of any part or circuit should result in the signal displaying its most restrictive indication. However, such a failure results in unnecessary train delays, which can hardly be tolerated under present competitive schedules. The fact that comparatively satisfactory service has been rendered by signaling facilities during the last few years indicates the excellent condition of this equipment before curtailments were started four years ago. However, the "elastic limit" will become evident when failures inevitably increase, which will be the experience on many roads unless immediate steps are taken to make extensive repairs.

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A Recent View of the Fixed-Frame, Reinforced Concrete Bridge, 72 ft. 6¼ in. Span, on the Canadian National, near Vaudreuil, Que.—This Bridge, Described in the *Railway Age* of March 24, Has Neither Track Ties Nor Ballast

Other Expenditures in Prospect

Wide diversity of normal railway purchases makes their orders an important factor in national recovery

What do the railways buy? Elsewhere in this issue their purchases for the engineering, signaling and mechanical departments are outlined in detail, but, as the figures in this article show, miscellaneous purchases not included under any of the above heads represent a tremendous purchasing power as well. The railways buy literally everything, and in enormous quantities. Their present and potential importance as customers of the automotive industry is great. A return of adequate revenues will witness an enormous increase in purchases in the miscellaneous field, an increase that will go far toward priming the pump of the durable goods industries, and keeping it going.

BY reason of the nature and magnitude of their activities the railways buy almost every conceivable commodity, and in amounts that will astonish those not familiar with the diversity of their purchases. For example, their average annual purchases of linen in the eight years to and including 1929 amounted to $2,000,000 per year, and they bought $1,000,000 worth of crockery annually. They spent $1,750,000 for gasoline in 1933, largely for section motor cars, while the figure for more normal years is much higher. Railway purchases range from pins to locomotives, and practically every product is used in some phase or other of railway operation.

Nearly 400 Million Spent

During 1929, the expenditure for materials and supplies coming under the heading of "miscellaneous purchases" amounted to $369,752,000. In the years of declining traffic that followed, these purchases, along with all other railroad purchases, showed a steady decline until 1933, when, again following the trend of traffic, they took an upward turn. A statement of these miscellaneous expenses by years shows the following figures:

1929	$369,752,000
1930	267,700,000
1931	172,150,000
1932	114,000,000
1933	124,730,000

Thus, even with the improvement shown in 1933, the miscellaneous purchases for that year still showed a decline of $245,022,000, as compared with 1929. Even though this decline of nearly a quarter of a billion dollars were to be spread thinly over the many and varied industries which benefit from these purchases, it would still represent an extremely sizable nest egg on which to begin national recovery.

By far the largest single item in this list of miscellaneous expense is that of "train and station supplies and miscellaneous," which includes, among other things, such items as automotive material, office machines, etc. These figures are also interesting.

1929	$113,757,000
1930	75,600,000
1931	41,300,000
1932	27,450,000
1933	29,400,000

Motor Coach Prospects

For reasons that will be apparent in the following, it is a practical certainty that, with the necessary funds available, the railways will again buy automotive passenger equipment not only on the 1929 scale, but in amounts far exceeding these figures. In 1929, the railways, together with their motor coach-operating subsidiaries, purchased 390 motor coaches and 92 passenger automobiles direct from the manufacturers. These were bought by 43 railway or subsidiary companies. In addition to these direct purchases, many units of automotive passenger equipment were bought from local dealers and do not, therefore, appear in this summary. In 1933, the direct purchases, by 22 companies, amounted to 106 motor coaches and 37 passenger automobiles.

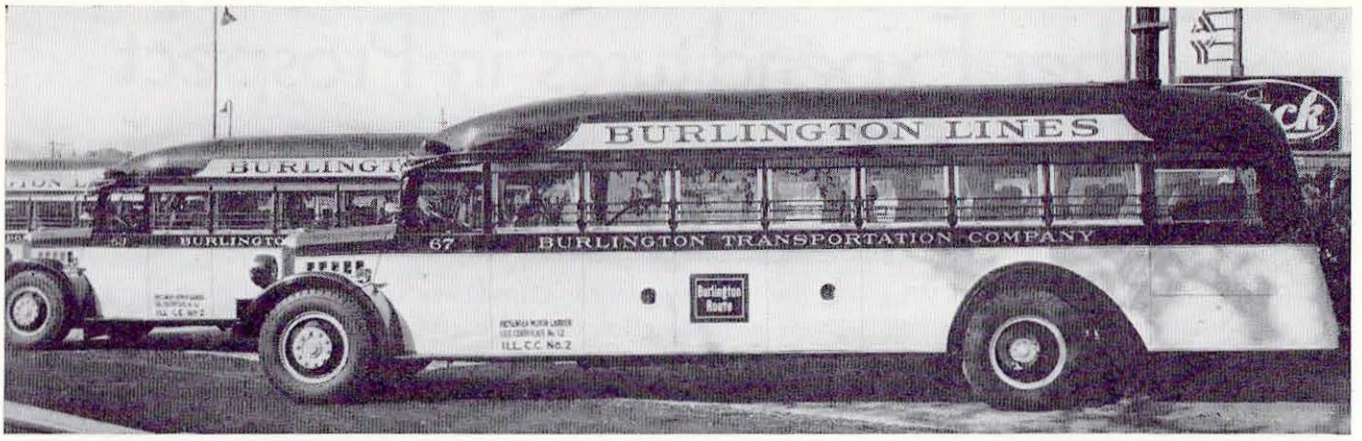
Coincident with the depression, the rapidly expanding operation of motor coaches by the railways and their subsidiaries settled down for two or three years to a more or less static condition, but with a continued and increased drive to build up the revenues and reduce the expenses of motor coach services already in existence. In 1933, this was still true, but there was also a definite, noticeable trend toward the use of motor vehicle service, largely for the purpose of providing faster and more flexible transportation, rather than merely as a means for reducing operating expenses through the elimination of unprofitable train service.

This development has continued in 1934, one of the most significant new services being the expansion of the motor coach operations of the Burlington Transportation Company, motor coach-operating subsidiary of the Chicago, Burlington & Quincy. Hitherto, this company has confined its operations exclusively to local, largely train-replacement service, but, with the purchase of a fleet of new streamlined coaches, through routes have been established paralleling the eastern part of the railway.

The determined fight of the railways to hold their present passenger business and regain as much of it as possible, as evidenced by the numerous orders placed for streamlined trains, indicates a further hopeful sign for the revival and expansion of motor coach operations. With this revived spirit, it is unlikely that they will overlook the possibilities of the motor coach as a valuable adjunct to their through and local passenger services.

There is also to be considered the fact that the time is rapidly approaching when the equipment purchased at the time of the greatest railway motor coach subsidiary expansion must be replaced. In fact, this time has been reached and passed in many instances, without the necessary purchases having been made, not because the officers in charge have not realized the ultimate economies available through the purchase of new equipment, but merely because there was no money available for the purpose, regardless of ultimate savings.

Closely allied with the development of motor bus operation by the railways is their increasing use of trucks.



New Coaches Bought This Year—Available Funds Would Materially Increase Automotive Purchases

Even under present financial conditions the railways and their contract agents are buying a number of trucks. The development of pick-up and delivery service has been largely responsible for this, but developments tending toward a vastly increased use of trucks by the railways for many purposes are only arrested by a lack of money for truck purchases. The moment this condition is relieved, the railways will enter the market for trucks and on a larger scale than ever before.

In 1929 the railways purchased 1,764 trucks, 59 tractors and 31 trailers direct from manufacturers. In addition, a number of automotive freight units were purchased from local dealers which are not included on this list. The purchase figures for 1933 were: 67 trucks, 2 tractors and 17 trailers.

The truck purchase figures for 1933 are low, but they hardly represent a true picture of the case for even last year the inauguration of pick-up and delivery service on the part of the railways led to the purchase of many trucks, which, although used entirely in railway service, handling storedoor collections and deliveries of railway l.c.l. freight, do not appear as purchases by railways, since most of them were bought by the railways' authorized contract truckers.

This year, with the tremendously increased growth of pick-up and delivery service, both in the inauguration of such service by railways not hitherto providing it, and expansion of service on railways that have had it in effect, many more trucks have been bought by cartage agents for exclusive railway use. The increasingly evident trend toward closer supervision by the railways of the purchases by their contracting truckers means a greater control of the buying of such equipment.

The Mechanization of General Accounting Offices Such as This Requires the Purchase of Much Office Machinery

A considerable number of other trucks, tractors and trailers were also purchased for use exclusively in railway service by contract agents handling railway merchandise from or to concentration points. This type of operation has been growing, as more and more railroads have found it advantageous to use trucks for short hauls in picking up freight for delivery at concentration collection points, followed by a rail haul to concentration delivery points, and distribution from there to local stations, using the trucks as replacements for short-haul local, and frequently branch-line, train service.

The reports, as published from time to time in the *Railway Age*, of the almost uniform success in regaining merchandise traffic by the provision of storedoor pick-up and delivery service indicate a present and potential source of railway purchases. At the time of the abrupt decline in railway revenues the railways were also making rapid strides in the mechanization of their freighthouse operations by the purchase of platform tractors and other equipment for the prompt and efficient handling of l.c.l. freight. If the storedoor pick-up and delivery service continues to bring back to the rails an increasing volume of traffic there will be a growing market for such equipment even under present business conditions, and when the general situation improves the railways will become still larger customers in these lines.

Several improved types of freight containers have also been developed recently. Despite lack of funds, the development of this type of freight transportation by the railways and the manufacturers has been great in the past year. Mechanical problems which have had a limiting effect on the use of this type of equipment are rapidly being solved, and, with the railways alert for means of meeting competition, there will be a large and growing railway market for containers as soon as funds are available.

The railways, with their enormous clerical staffs, amounting, in normal times to about 300,000 clerks, are among the largest potential customers for office equipment and machinery in the country. Moreover, whatever the truth or lack thereof in the charges formerly directed against the accounting and statistical departments of the railways to the effect that they were behind the times in the use of office machinery, this situation does not exist today for railway accounting and statistical officers are not only sold on the idea of the increased efficiency and savings to be effected by mechanization of their offices,

but they are also thoroughly familiar with the use and value of the machines at present on the market.

The railways must necessarily maintain elaborate accounting and statistical departments, in view of the complexity of their operations and the comprehensive reports required by the Interstate Commerce Commission. In the years immediately prior to 1929, these accounting departments, as reported in the *Railway Age* on several occasions, were being rapidly mechanized. Moreover, the demand for accurate, timely and complete figures and reports covering all phases of operation was increasing. In all, the railways represent one of the greatest, if not the greatest, actual and potential markets for accounting machinery. The results obtained from such equipment are now more clearly in evidence than ever before, with the necessity for clerical staff reductions that has come to every railroad.

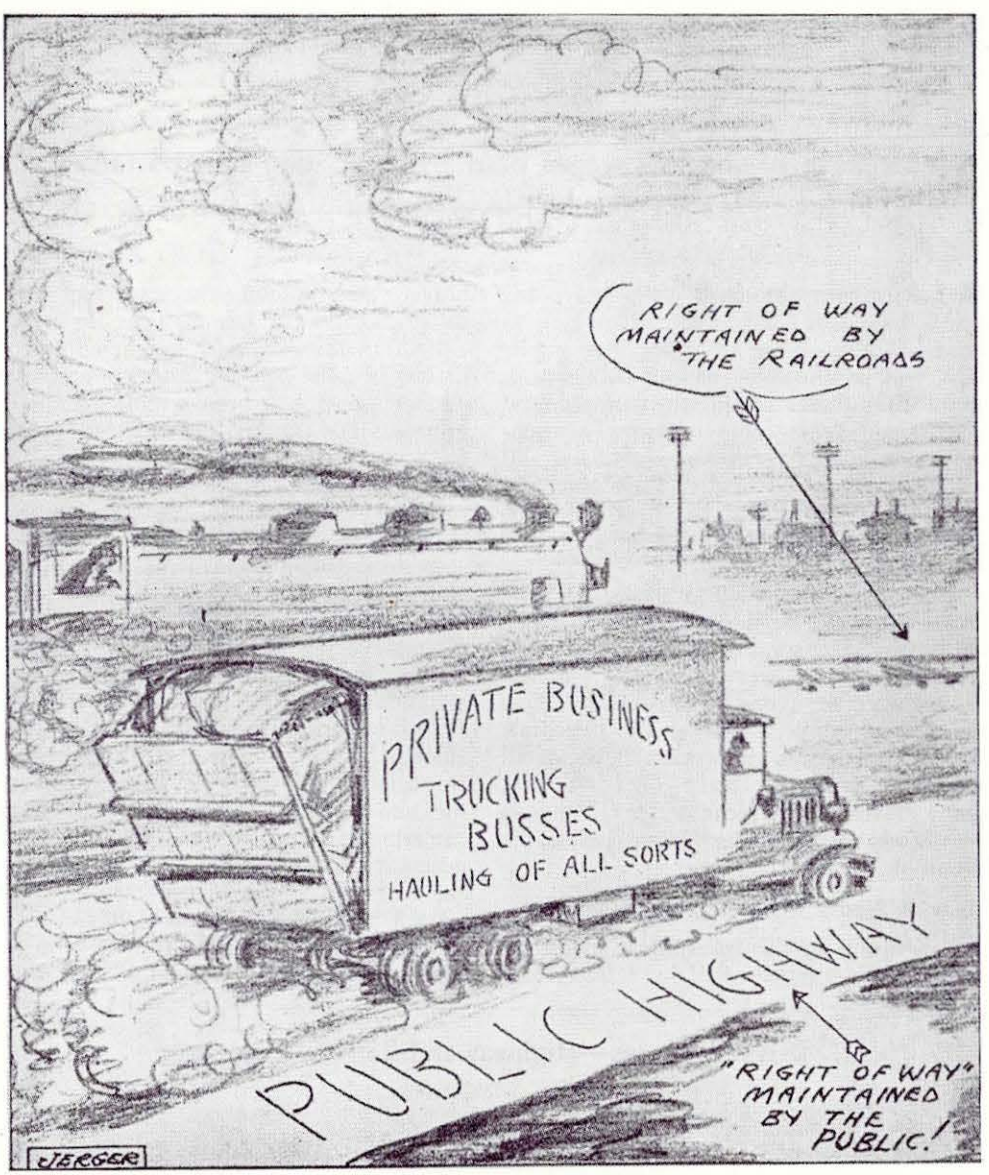
Because of the lack of funds, the railways do not offer the present market for office equipment and office machinery, which their needs for such devices would indicate. Potentially, however, the situation is quite different. In view of the railways' present attitude toward the desirability of modernizing and mechanizing their accounting, statistical and other intrinsically clerical departments, there can be no doubt but that, as soon as railway purchasing power is restored, these purchases will be resumed on a large scale.

Just how large a scale is difficult to determine, since exact statistics as to the number of such machines on all of the railroads are not available, but the figures for one large western railroad will give an idea of the market possibilities. In addition to 2,064 typewriters, this railroad owns 2,157 adding and listing machines, bookkeeping and accounting machines, calculators, commercial numbering machines, ediphones, dictaphones, mimeographs, addressographs, pay check writers, money changing devices, etc., with a total investment of more than half a million dollars. The annual repair bill alone for these machines runs to approximately $30,000.

Conclusion

The priming of the pump by the railways to the amount of some $250,000,000 *additional* miscellaneous purchases per year, largely from the durable goods industry, merely awaits a return to the railways of some of the traffic of which they are logical carriers and traffic which would return to them under any sort of fair competitive conditions.

* * * *



Courtesy Locomotive Engineers Journal

Fair Competition?

What Wage for Transport Labor?

Highway

58.4 CENTS AN HOUR
51.1 HOURS A WEEK

Railway

$1.57 AN HOUR
37.7 HOURS A WEEK

Railways are losing traffic and railway employees their jobs because of the low wages paid by competing transportation agencies—Wages must be placed on parity, but at what level?

WHEN there are two standards of money, one cheap and one dear, but either of which is equally legal in payment of debts, the public soon learns that it will be ahead by paying its debts in the cheaper money. The dearer disappears from general circulation. This phenomenon occurs unfailingly whenever two unequal standards of money are legalized and is recognized in economics as Gresham's Law, deriving its name from Sir Thomas Gresham who first called attention to this characteristic of human behavior about the middle of the sixteenth century.

There is also what may be called a Gresham's law of labor. If the prevailing wage of domestic servants in a given community is, say, $10 weekly, and if there is an influx into that community of Orientals seeking employment and whose standard of living is satisfied by $5 a week, one of two things happens—either the Orientals get virtually all the jobs, or else the general level of all domestic wages declines to the $5 level. That is to say, just as cheap money drives out the dear under Gresham's law, so does cheap labor drive out dear labor, unless the dear labor will come down in price.

Competitors' Low Wages a Major Railway Handicap

This law is in operation in the transportation industry. The high-priced labor, represented by railway employees, has not come down in price, but is instead losing its employment to labor on the highways and waterways which is willing to work longer hours for a mere fraction of the wages paid to railway employees. If railway managements had been willing to take advantage of the glutted labor market and had reduced railway wages, as their competitors have in many instances, to a level of bare subsistence, then one of the principal handicaps the railways encounter in meeting competition would not exist.

Instead the managements have recognized the desirability from a social and ethical standpoint—however doubtful from a cold-blooded business point of view—of endeavoring to protect their employees insofar as possible in the high standard of living they have attained—a standard of living, incidentally, which America can well afford under normal business conditions to workers as efficient as railroad men are. The maintenance of these wage levels on the railroads has, however, necessitated the maintenance of higher levels of rates and greater curtailment of service than would otherwise have been necessary. Such rates and curtailment of service have caused the diversion of traffic to the highways and waterways which otherwise might have continued to move by rail. If this traffic had been held on the railways, owners of railway securities would be better off than they are

Drivers' Wages—Highway and Railway Compared

	Intercity Bus Drivers	Passenger Loco. Engineers	Difference in favor of Loco. Engineers	Intercity Truck Drivers	Freight Loco. Engineers	Difference In favor of Loco. Engineers
Av. hours per week.....	51.1	37.7	— 26%	53.2	41.9	— 20%
Av. hourly earnings.....	$0.584	$1.574	+170%	$0.472	$1.281	+171%
Av. earnings per week...	$29.82	$59.34	+ 99%	$24.68	$53.67	+117%

Inequality of Wages in Transportation Is Unjust—

To Railway Labor, because it causes loss of jobs to cheap labor in highway and waterway transportation;

To Highway and Waterway Labor, because the power of the federal government has been exercised to help railway labor build up and maintain high standards of employment, which power the government has not exercised in behalf of other transportation labor;

To Railway Owners, because it places an arbitrary and gratuitous obstacle in the way of profitable operation of their properties in the public interest;

To Railway Patrons, because it compels them to pay rates to cover labor costs which are much higher than those which patrons of other forms of transportation are required to pay for;

To Manufacturers of Railway Equipment and Supplies and Their Employees, because gratuitously and indefensibly, it restricts the market for their products while artificially stimulating the markets for manufacturers of products used by low-wage transportation agencies;

To Taxpayers, because it tends to shift traffic from a form of transportation which yields taxes to those forms which consume taxes;

To Society in General, because the diversion of traffic by low wages has a deflationary effect on wages in general which, if continued, must result in a general lowering of the standard of living.

now. Likewise, with more traffic and less curtailment of services, fewer employees would have been furloughed.

Furloughed Employees and Security Owners the Chief Sufferers

The policy of maintaining high wage standards for relatively few employees, therefore, has been followed largely at the expense of railway security owners and of those employees whose services have been dispensed with. Whatever may be the social desirability of maintaining a high living standard for a favored group of employees, it is plainly evident that the policy has social disadvantages as well. It cannot continue indefinitely. Railway employees must face the certainty that, unless the wages and working conditions of comparable labor in highway and waterway transportation are raised, then those of railway employees must come down to the competitors' level.

The railways are in much the same position as a self-respecting merchant who wishes to sell only reliable merchandise to his patrons and who desires to pay his employees a living wage. He has, however, to meet the competition of "chiselers" who do not hesitate to pay starvation wages to their employees and otherwise undermine business standards. Sooner or later the merchant, if this cut-throat competition continues, is faced with the alternative of going out of business entirely or of reducing his labor and other costs by the same practices his competitors employ. One of the announced purposes of the N.R.A. was to end competition at the expense of labor standards.

This principle, however, the N.R.A. deliberately ignored in dealing with transportation. Instead it perpetuated the existing injustice by authorizing wage minima in highway transportation which are but a pitiful fraction of the wages paid by the railways for comparable employment in competing services.

Railroad managements—if the loss of traffic to competitors paying low wages continues—will have no alternative except to reduce railway wages to an equivalent competitive level. They cannot do otherwise and fulfill their responsibilities to railway owners who have entrusted the property to their care. If railroad employees wish to avoid this painful outcome, if the American public and the government wish to see decent living standards maintained in the transportation business, and if they wish to avoid the industrial conflict which might result if railway managements are forced to take this step, then it is time for them to wake up and correct the conditions which are bringing this outcome nearer and nearer each day.

Wages of Truck Mechanics and Railway Machinists Compared

	Truck Mechanics	Railway Machinists	Difference in Favor of Railway Machinists
Avg hours per week....	52.6	39.1	—25.7%
Avg. hourly earnings....	$0.529	$0.756	+42.9%
Avg. earnings per week..	$27.77	$29.56	+ 6.4%

Some Railway Wage Practices Are Obsolete and Indefensible

Despite the desirability of equalizing wages in all forms of transportation, and the social advantages of securing that equalization by leveling highway and water transportation wages upward rather than railway wages downward, there is one phase of railway working conditions which is obsolete and which cannot reasonably be defended. This is the present mileage basis of payment in fast freight and passenger service. Freight train and enginemen receive eight hours' pay for each hundred miles run in less than that time. When this correlation between 8 hours and 100 miles (i.e., 12½ miles per hour) was originally made the average speed of freight trains was less than 10 miles per hour. Now the average speed is 15.9 miles per hour and the average freight train crew earns its day's wages in 6 hours, 17 minutes. In fast freight service the day's pay is often earned in as little as three hours. This increase in speed has been necessary to meet competition and to hold traffic on the railways—which is as much to the advantage of the employees as it is to railway owners. The train and engine crews alone are certainly not responsible for this increased speed—rather the whole railway organization has co-operated to secure it.

Is it fair that the fruits of the increased speed should be shared so unfairly, and that one class of employees alone should thereby be able to secure a day's pay for three or four hours' work?

Injustice to Railway Employees

Unfair for government to deprive them of jobs by costly favors to railways' competitors

By George L. Phillips

Chairman, National Advisory Council, Railroad Employees and Taxpayers Associations

RAILROAD employees appreciate the standard of living they have attained because they had to fight hard for every feature of it. The eight-hour day, the safety appliance standards, the sixteen-hour limit, time and one-half for overtime—all these and many more accomplishments for the protection of railroad employees were fought for and won by our labor organizations. Railroad employees—at least those in the organized trades—owe a debt of gratitude to their respective brotherhoods that they cannot and should not forget.

But now, what has happened? All that our organizations have won for us in two generations is being taken from many of us—not by railroad managements, but by the subsidized and unregulated competition of underpaid and overworked labor on the highways and waterways. Our union rules and our wage rates stand, and provide protection for the men who still have jobs. They do not help the thousands of employees who have been cut off because the traffic which used to give them work on the railroads is now being hauled over tax-built highways and inland waterways by unorganized employees who are working for next to nothing.

Unequal Competition an Enemy to Railroad Labor

It used to be railroad managements with whom employees had to contend to protect and improve their labor standards. Our organizations gained recognition of these standards by the managements, and today railroad managements themselves will admit that at least a good proportion of what the employees fought for was justified. But railroad employees cannot be secure in jobs with decent working conditions nowadays merely because railway managements concede them. Instead, jobs with such standards have been lost by the thousands by the activities of the selfish interests which crowd the highways the public's money has built with unregulated truck and bus lines, which pay little for the privilege, and which are operated by men who are not adequately protected as to safety rules and in their right to organize and demand decent wages and working conditions for themselves.

The public means well. It does not approve of sweat-shop labor. It does not want to be unfair to railroad employees by exposing them to this kind of Coolie competition, robbing them of everything they have fought for for forty years. But the public is misled until sometimes it is almost dazed by the most tremendous deluge of cleverly mendacious propaganda the country has ever seen in behalf of those who are exploiting the highways, labor and the taxpayers for their own selfish gain.

George L. Phillips

Even government agencies are not free of one-sided and unfair policies in favor of the transportation agencies in competition with the railways. The United States Bureau of Public Roads favors policies regarding highway construction and finance which must appear biased and unscientific to any person seriously concerned with getting at the facts of the transportation problem. Similarly in the War Department, in the person of the chairman of the Inland Waterways Corporation, the taxpayers are supporting an outspoken propagandist who is using his influence, his voice and his energy in an effort to divert traffic from a form of transportation which yields taxes to the inland waterways which consume them.

"Indian Givers" Who Profess Friendship for Railroad Employees

These are the influences which are working against the welfare of railroad employees today, and the railroad employees know it. The man who says he favors good wages and working conditions for railroad employees with one breath, and with the next votes additional subsidies to their highway and waterway competitors, is an Indian giver. He takes away his present as quickly as he gives it. Good wages and working conditions are fine on paper, but they are not worth much unless there are some men working under those favorable conditions. We want the conditions our organizations have won for us, but we also want the state and federal governments to regulate the truck and water lines and quit giving them the taxpayers' money, else our schedules will continue to protect only a few men.

We are not asking any favors or special privileges. The wages and working conditions in railroad service have, practically all of them, been passed upon at one time or other by some federal tribunal as just and fair. If they are just and fair, then why take them away from us indirectly, by subsidizing and otherwise favoring competing forms of transportation? The government having decided that the eight-hour day, the sixteen-hour law and other laws and agreements affecting railway labor are just, should it not exert itself to the utmost to make these regulations effective, not only by enforcing them upon railway managements but by plugging up the leaks of "bootleg" transportation?

Such, at any rate, is my personal view and I know that it is shared by many thousands of railroad employees with whom I have discussed the subject. Furthermore, it is a view which merchants, farmers and and all other classes in the community are beginning to understand. It is shared by impartial students

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Is it fair that the fruits of the increased speed should be shared so unfairly, and that one class of employees alone should thereby be able to secure a day's pay for three or four hours' work?

> **Before fair competition can be said to exist, it will be necessary that the various transport agencies pay the same rates of wages for comparable skill, render reliable service on a non-discriminatory basis, and bear an equal tax burden.**
>
> *From the Annual Report of the Interstate Commerce Commission, December 1, 1933.*

In passenger engine service 100 miles is taken as the equivalent of five hours, which latter is justly considered a good day's work for a passenger engineman. But trains are now being developed to operate at 100 miles or more per hour. Can it be seriously contended that it will be fair, on such a train, to pay the engineman five days' wages for five hours of work? If this contention is made, then the success of these unit trains in competing with buses and airplanes will be severely limited. Air pilots work five or six hours and cover up to 1000 miles for a day's wages, and bus drivers work eight to ten hours and cover 200 miles or more.

A mileage basis of payment is justified in train service as an incentive to train crews to keep their trains moving, but it ought to be correlated with present-day train speeds and not those of ancient history. If the pre-war speed basis of payment continues, it will act as a severe handicap to the railways in their attempt to win back traffic from their competitors which are not tied down by any such restriction, and which cannot in justice be required to assume such a handicap. The inability of the railways by reason of these obsolete rules to make effective use of the new high speeds to win back traffic to the rails would work to the disadvantage not only of train and engine service employees, but to that of all other classes of railway employees as well.

Right to Protection of Savings Cannot Be Overlooked

In their sympathetic consideration of the claims of railway employees to generous wages, the managements cannot ignore entirely the just rights of investors in railway securities. Rights to income from the ownership of property are just as "human" as the rights of a worker to wages. If any man doubts this let him ask himself whether he would not consider himself just as much robbed if his savings bank refused to pay him his deposits as he would if his employer refused him his pay check. The savings, no less than the pay check, represent the fruits of the man's labor. Naturally, if he ventures to gamble with part of his savings, he has no right to complain if he is not repaid dollar for dollar. Neither can he rightfully protest if he speculates on the stock market and loses. But if he puts his savings to use in the most conservative investment he can find—if he deposits them in a savings bank, uses them to buy life insurance or buys outright the stock in some conservatively capitalized and useful industrial enterprise—then he has the right to expect that those to whom he entrusts his money will guard it with extraordinary care; that they will honestly defend it in every way that they can.

The money of insurance policyholders, of savings bank depositors, of hospitals, colleges and charitable institutions is invested in railway securities. The rights of these millions of people to the protection of their investments are in the guardianship of railway managements. They are rights no less fundamental and no less "human" than those of railway employees to fair wages and working conditions. The time is soon coming when some of the sacrifices made necessary by prevailing conditions will have to be spared by this latter group, if the rights of the former are not to be ignored altogether—unless employment conditions in the whole transportation industry are quickly brought up to the railroad level wherever competition exists. The managements cannot avoid facing this issue squarely even if they should desire to do so. They are the servants of railway owners and these latter are becoming critical of railway wage levels maintained at the complete sacrifice of the owners' interest.

Does Public Favor Good Wages?

Some people—even some officials high in the government—are unsympathetic with the policy of the railways in maintaining wages and working conditions, believing that both wages and rates should come down. Railway employees and social-minded persons in all walks of life who desire to prevent the break-down of the high standards of labor built up over long years in the railroad branch of the transportation business should take cognizance of this viewpoint wherever it exists. If a large body of the American people, including government officials, are not favorable to a high standard of living for persons engaged in transportation and will not take the necessary steps to enable that standard to be maintained, then railway managements alone and unaided can do nothing effective toward protecting it.

If all freight trains could have 100 or more cars and all passenger trains 200 or 300 passengers, competition of buses and trucks on a basis of labor costs would not be so serious. But present labor standards require the railways to pay the same wages and have the same number of employees in their crews if the freight trains have only 10 or 15 cars and the passenger trains only 20 or 30 passengers. A freight train of 15 cars of l. c. l. freight might not have more than, say, 75 tons of paying freight in it, and yet a crew of five men is required, under the rules, for such a load which could probably be moved by truck by not more than twice as many men at a total labor cost (considering the low wages of truck drivers) as low or lower than that of the railroad. Similarly the 20 or 30 passengers in the lightly laden train could be moved in a single bus by one driver, as contrasted with a crew of from three to five men on the railroad.

Where Wage Competition Does Its Damage

The high wage rates and schedules which require so many men per train crew make it impossible for the railways to compete economically with trucks and buses on branch lines and elsewhere where insufficient traffic is available for heavy trains. If the traffic thus diverted

Average Annual Compensation per Employee—Railways and Waterways Compared

Class I Railways	Combined Water Carriers	% Less Than Railways	Great Lakes	% Less Than Railways	Miss. River and Tributaries	% Less Than Railways
$1,685	$1,093	35.1	$1,025	39.2	$893	47.0

Above figures are those of six-year average 1925-30.

to the highway from branch lines and other lines of light traffic were turned over to the railways for trunk-line movement in heavy trains, the railways might not lose appreciably from the process. Unfortunately, however, traffic displays inertia like any other form of matter. Once loaded in a highway vehicle, effort and expense is involved in shifting it to the railway, and the tendency is for it to make the entire trip by highway.

Despite higher wage rates, the railways labor costs per ton-mile or per passenger-mile are lower than those of their highway competitors when traffic is available in sufficient quantity to operate heavy trains. The bus and truck lines do not compete directly with these heavy trains; but with those of lighter lading which may be called "marginal trains", the costs of operation of which relative to pay load are approximately equivalent to the costs of operation of highway vehicles. The lower wages are in highway service, then the larger the pay load on a train must be to show economy in labor costs per ton-mile or per passenger-mile over the labor costs of highway transportation.

Moreover, if wages paid by highway operators were equivalent to those paid by the railways the "marginal train" could be a great deal lighter in pay load than it is now. The railways could afford to run more trains, thus employing more labor. And it should not be forgotten that these "marginal trains" are the feeders of heavy mainline trains. Cut off several of them, and a main-line train fails to come into being, thus further reducing railway traffic and employment. Low wages in highway transportation thus not only affect the railways adversely on the "margin", they also indirectly, but none the less certainly, curtail heavy main-line traffic. Low wages are, moreover, a characteristic not only of highway transportation but of the water lines as well, being just one more factor, in addition to the free rights-of-way and absence of regulation which they enjoy, which enables them to divert traffic from the railways.

Railway Managements Not Opponents of High Labor Standards

The present standard of wages and working conditions on the railroads cannot be maintained without a struggle. Those who are interested in maintaining it—whether they be the railway employees themselves or persons whose views on social problems support high standards for American workers—should see clearly whom and what it is they have to fight against, and should do their fighting now. If conditions get to the point where railway managements have no alternative left but to press for railway wage reductions—then the battle will not be won by anethematizing railway managements. They are not the individuals, nor do they represent the forces, which are at work to break down labor standards. Their reluctance to take this step, manifested over these long years of depression, shows where they stand. But the loss of railway traffic by reason of low wages in water and motor transport has got to stop.

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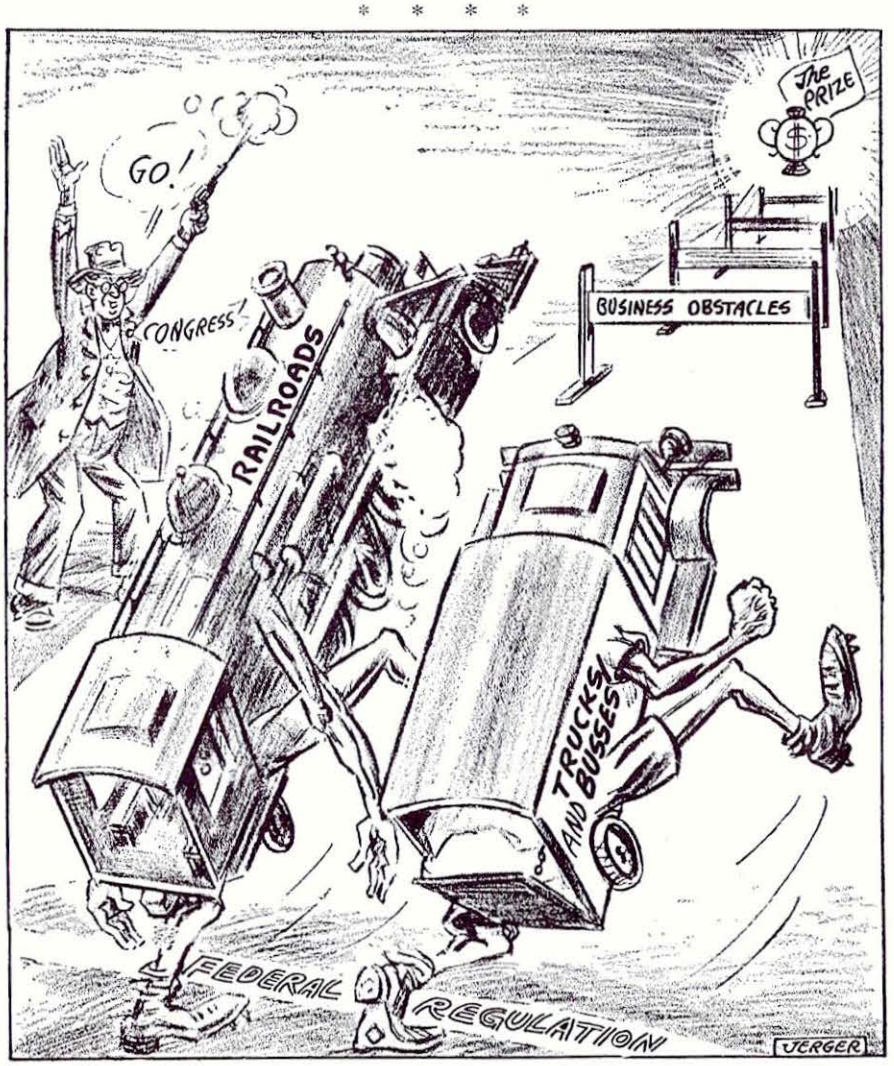


Courtesy Locomotive Engineers Journal

Right!—Start Them Both Off At "Scratch"!

Injustice to Railway Employees

Unfair for government to deprive them of jobs by costly favors to railways' competitors

By George L. Phillips

Chairman, National Advisory Council, Railroad Employees and Taxpayers Associations

RAILROAD employees appreciate the standard of living they have attained because they had to fight hard for every feature of it. The eight-hour day, the safety appliance standards, the sixteen-hour limit, time and one-half for overtime—all these and many more accomplishments for the protection of railroad employees were fought for and won by our labor organizations. Railroad employees—at least those in the organized trades—owe a debt of gratitude to their respective brotherhoods that they cannot and should not forget.

But now, what has happened? All that our organizations have won for us in two generations is being taken from many of us—not by railroad managements, but by the subsidized and unregulated competition of underpaid and overworked labor on the highways and waterways. Our union rules and our wage rates stand, and provide protection for the men who still have jobs. They do not help the thousands of employees who have been cut off because the traffic which used to give them work on the railroads is now being hauled over tax-built highways and inland waterways by unorganized employees who are working for next to nothing.

Unequal Competition an Enemy to Railroad Labor

It used to be railroad managements with whom employees had to contend to protect and improve their labor standards. Our organizations gained recognition of these standards by the managements, and today railroad managements themselves will admit that at least a good proportion of what the employees fought for was justified. But railroad employees cannot be secure in jobs with decent working conditions nowadays merely because railway managements concede them. Instead, jobs with such standards have been lost by the thousands by the activities of the selfish interests which crowd the highways the public's money has built with unregulated truck and bus lines, which pay little for the privilege, and which are operated by men who are not adequately protected as to safety rules and in their right to organize and demand decent wages and working conditions for themselves.

The public means well. It does not approve of sweat-shop labor. It does not want to be unfair to railroad employees by exposing them to this kind of Coolie competition, robbing them of everything they have fought for for forty years. But the public is misled until sometimes it is almost dazed by the most tremendous deluge of cleverly mendacious propaganda the country has ever seen in behalf of those who are exploiting the highways, labor and the taxpayers for their own selfish gain.

George L. Phillips

Even government agencies are not free of one-sided and unfair policies in favor of the transportation agencies in competition with the railways. The United States Bureau of Public Roads favors policies regarding highway construction and finance which must appear biased and unscientific to any person seriously concerned with getting at the facts of the transportation problem. Similarly in the War Department, in the person of the chairman of the Inland Waterways Corporation, the taxpayers are supporting an outspoken propagandist who is using his influence, his voice and his energy in an effort to divert traffic from a form of transportation which yields taxes to the inland waterways which consume them.

"Indian Givers" Who Profess Friendship for Railroad Employees

These are the influences which are working against the welfare of railroad employees today, and the railroad employees know it. The man who says he favors good wages and working conditions for railroad employees with one breath, and with the next votes additional subsidies to their highway and waterway competitors, is an Indian giver. He takes away his present as quickly as he gives it. Good wages and working conditions are fine on paper, but they are not worth much unless there are some men working under those favorable conditions. We want the conditions our organizations have won for us, but we also want the state and federal governments to regulate the truck and water lines and quit giving them the taxpayers' money, else our schedules will continue to protect only a few men.

We are not asking any favors or special privileges. The wages and working conditions in railroad service have, practically all of them, been passed upon at one time or other by some federal tribunal as just and fair. If they are just and fair, then why take them away from us indirectly, by subsidizing and otherwise favoring competing forms of transportation? The government having decided that the eight-hour day, the sixteen-hour law and other laws and agreements affecting railway labor are just, should it not exert itself to the utmost to make these regulations effective, not only by enforcing them upon railway managements but by plugging up the leaks of "bootleg" transportation?

Such, at any rate, is my personal view and I know that it is shared by many thousands of railroad employees with whom I have discussed the subject. Furthermore, it is a view which merchants, farmers and and all other classes in the community are beginning to understand. It is shared by impartial students

such as the Interstate Commerce Commission which in its 1933 annual report stated:

Before fair competition can be said to exist, it will be necessary that the various transport agencies pay the same rates of wages for comparable skill, render reliable service on a non-discriminatory basis, and bear an equal tax burden.

President Roosevelt Understands Conditions

It is shared by President Roosevelt who, in his Salt Lake City speech in the 1932 campaign, said:

We built—properly—hundreds of thousands of miles of first-rate highways directly paralleling the railway tracks. These we paid for out of taxes or bond issues. Today many hundred buses and trucks engaged in interstate commerce use these rights of way for which they have made no investment.

You and I, in our annual tax bills, pay for most of the maintenance of the highways and interest charges on their construction. The motor vehicles pay only a small part. Naturally they can often haul passengers and freight at a lower rate than the railroads. They can operate with a relatively smaller overhead and capital, lower taxes and lower maintenance costs for their right of way.

Also, we, the national government, allow them to operate free from many restrictions which would insure safety to the public and fair working conditions for labor. We must not give them any unfair competitive advantages over the rails.

We do not desire to put motor vehicle transportation out of its legitimate field of business, for it is a necessary and important part of our transportation systems; but motor transportation should be placed under the same federal supervision as railroad transportation.

A Specific Program

Specifically, to protect the railroad employees in the socially desirable standard of living which their brotherhoods have won for them, it is essential that the state and federal governments enact the following legislation:

Complete regulation as to rates, service and operating practices of all carriers for hire by highway and waterway;

Rigid safety appliance standards for all transportation agencies such as are in effect governing the railroads;

Protection of the right of highway and waterway transportation workers to organize and fight for better conditions, eliminating long hours of labor, sleeping on vehicles and other inhuman practices;

Exaction of fees for the use of the highways and waterways by commercial users which will amply cover not only the maintenance and investment costs of these facilities but also the equivalent of the taxes which such properties would bring if they were in private hands;

Prohibition from the highways of vehicles of uneconomic size, that is, vehicles of such size that the additional highway costs which they entail cannot be recovered in fees exacted from their operators;

Repeal of the long-and-short haul clause in the Interstate Commerce Act which prohibits the railroads from making competitive rates where competition exists unless they will make similar rates where it does not exist.

Transport Equalization Is Social Legislation

If legislators will enact such measures, not as a special favor to anyone, but simply because they are just and in the public interest, railway employees will be secure in the standard of living they have won for themselves. Unless such legislation is enacted, then these standards will continue to protect only the comparatively few employees now working, whereas they should cover hundreds of thousands more. Legislation to equalize competitive conditions in transportation really is social legislation of the most effective type—in that it will provide decently remunerative jobs for many men not now working.

Railway working conditions, of course, are not yet ideal by any means, and improvements in them must be sought. But, with hundreds of thousands of railroad men idle, it is just as important to get more men to work under present conditions as it is to improve conditions. Intelligent railroad men in pursuing one objective are not going to lose sight of the other. We are asking for bread, and we shall not be satisfied with a stone, which is all that lip service to decent working standards on the railroads can mean unless it is coupled with the equalization of competitive conditions in transportation.

State Associations of Railroad Employees and Other Citizens Affiliated with the National Advisory Council of the Railroad Employees & Taxpayers Associations

Alabama—Association of Railway & Express Employees
Connecticut—Railroad Employees & Taxpayers Association
Delaware—Railroad Employees & Taxpayers Association
Georgia—Association of Railway Employees
Illinois—Railroad Employees & Taxpayers Association
Indiana—Railroad Employees & Taxpayers Association
Iowa—Railroad Employees & Taxpayers Association
Kansas—Railway Employees & Citizens Tax League
Kentucky—Railroad Employees & Citizens League
Maine—Railroad Employees & Taxpayers Association
Maryland—Railroad Employees & Taxpayers Association
Massachusetts—Railroad Employees & Taxpayers Association
Michigan—Railroad Employees & Citizens League
Minnesota—Railway Employees Ship-by-Rail Association
Missouri—Railroad Employees & Taxpayers Association
Montana—Ship-by-Rail Association
New Hampshire—Railway Employees & Citizens Association
New York—Railroad Employees & Taxpayers Association
North Carolina—Railroad Employees & Taxpayers Association
North Dakota—Railroad Employees Association
Ohio—Railroad Employees and Citizens League
Pennsylvania—Railroad Employees & Taxpayers Association and Railroad Employees Association of Pennsylvania
Rhode Island—Railroad Employees and Taxpayers Association
South Carolina—Association of Railway and Railway Express Employees
Tennessee—Railroad Employees & Citizens League
Virginia—Railroad Employees & Taxpayers Association
Washington—Railway Employees Ship-by-Rail Association
West Virginia—Railroad Employees and Taxpayers Association
Wisconsin—Ship-by-Rail Association

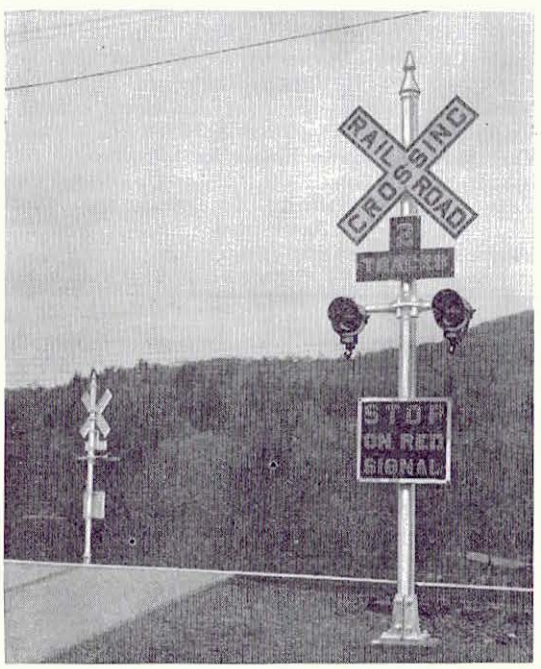
Improved Highways Have Intensified the Demand for Grade Separation

What of the Grade Crossings?

How a national responsibility can be made to serve as a means of unemployment relief

EFFORTS to solve the problem of unemployment by a gigantic program of public works have led to the initiation of some projects of doubtful economic or social value. But no such question can be raised concerning the use of federal funds for the elimination or protection of grade crossings of railways and highways, as has been done during the last year under the provisions of Title II of the National Recovery Act and under the Hayden-Cartwright Act. In fact, it is to be questioned whether any other improvements that have been deemed worthy of federal grants have so much to commend them, both as measures for widespread unemployment relief and as a source of permanent benefit to the greatest number of people.

The public demand for improved safety and reduced delays to highway traffic at these crossings is so incessant that there can be no question as to the eventual expenditure of vast sums for the elimination of many crossings and the better protection of a great many others. Therefore, any projects undertaken now primarily as a means of providing more employment, will represent just so many projects taken from the schedule of work that will be done eventually. Because of these facts, as developed in greater detail in the discussion that follows, there is every reason why the elimination and protection of railway-highway grade crossings should have an important place in the extension of the public works program.



Signal Protection for Grade Crossings Must Have an Important Place in the Plan

The Accident Record

Accidents at grade crossings in the United States during the last 20 years have resulted in the death of from 1,169 to 2,660 persons, and in injuries to 3,053 to 7,185 others, annually. There was a pronounced decrease in the number of accidents from 1928 to 1933, but the record of the first half of the present year indicates a higher casualty rate for 1934, as compared with 1933.

Thorough investigations of the circumstances attending these accidents, as well as painstaking studies of the driving habits of the operators of motor vehicles approaching railway crossings prove conclusively that the same mental and physical deficiencies, the same heedlessness, and the same disregard of established rules of the road that have resulted in an annual death rate of more than 30,000 in highway accidents of all kinds, are responsible for nearly all of the accidents that occur at the crossings of railway tracks. This would seem to indicate that the only way to eliminate all grade crossing accidents is to do away with all the crossings. However, the safeguards now being installed at many crossings provide all the protection needed to insure absolute safety for the driver who will heed the warnings given and whose driving habits are such that he is enabled to comply with them. And since the elimination of the 237,000 existing grade crossings in the United States would cost several billion dollars, it is necessary to view the problem from a more practical standpoint and confine attention to what may be deemed the dangerous crossings.

How Many Are There?

How many dangerous crossings are there? Efforts to develop a formula or a statement of criteria that will set up a logical procedure upon which to arrive at an answer to this question are still in the development stage. As a matter of fact, no definite answer will be needed for a long time, because a program of elimination that embraces only those crossings that possess established accident records will give rise to a tremendous construction schedule. And before work on these crossings can be completed, ample time will have elapsed for a study of what might be termed the border-line cases. In the meantime, the installation of improved facilities for the protection of highway traffic at grade crossings and an educational program to insure better observance of the signals provided must have an important place in the plan.

According to the latest information available, about 30,400 of the 237,000 crossings are protected by other than fixed signs. Of these protected crossings about 4,700 are protected by gates (of which 2,800 are in part-time operation), 1,200 by watchmen full time, 5,000 by watchmen part time, 16,700 are protected by automatically controlled visible signals, and 3,600 by audible signals. It would appear, therefore, that there is a large field for the improvement of protection at grade crossings.

Whereas, the elimination and/or protection of crossings at grade between railroads and public roads is greatly to be desired as a means of providing greater safety for the traveling public on the highways of the nation; and to foster and promote interstate commerce between the several states, and

Whereas, this Association is informed that, with the view of relieving unemployment and aiding the national recovery, large appropriations have been made by the Congress,

Be It Resolved, that the National Association of Railroads and Utilities Commissioners urgently commends to the consideration of the President of the United States the desirability of immediate appropriation, out of funds made available by the Congress, of substantial sums to be expended in the several states, for the purpose above set forth, upon such projects as may be recommended and approved by proper Federal and State authorities.

—Abstracted from a Resolution passed at Washington, D. C., on November 15.

Although no record is available of the highway-railway grade crossings that have been eliminated in the past, the number is known to be very large. In the city of Chicago alone, the grades have been separated at 900 crossings of streets and railroads. According to statistics compiled by the Interstate Commerce Commission, 10,341 grade crossings were eliminated between the end of 1925 and the end of 1932, of which, 1,938 were removed by the separation of the highway and railway grades and the rest by the relocation of the highways, the closing of the crossings or the abandonment of railway lines.

However, during that same period 11,726 new grade crossings were established, with the result that instead of a decrease, there was a net increase of 1,385 grade crossings between December 31, 1925, and December 31, 1932. It does not necessarily follow that this has resulted in an increase in the hazard, as a large part of the new crossings embrace streets or highways of light traffic, whereas the eliminations in most cases were made at crossings presenting serious hazards. Since the end of 1929, also, the eliminations have exceeded the additions, so that there were 1,167 fewer grade crossings at the end of 1932 than at the close of 1929.

A Reinforced Concrete Over-Crossing. One of the Many Types of Construction That Can Be Employed in Such Projects

Many Crossings Unnecessary

The statements presented above with respect to the elimination of grade crossings, disclose a tendency that has an important bearing on efforts to further this work in the future. As shown in the figures given above, 81.3 per cent of the eliminations effected in 1926 to 1932, inclusive, did not involve the expensive construction work required for a separation of grades and the building of the structure necessary to carry the street or highway over or under the tracks. This indicates a growing appreciation of the opportunity for a reduction in the grade crossing hazard by the abandonment of unnecessary crossings, but it is doubtful if the economic advantages inherent in this approach to the problem are fully realized. The stepping up of the speeds of highway and street traffic have removed much of the justification for the close spacing of either street or rural road crossings on the ground of convenience, because the occasional detour entailed by the removal of some of the crossings rarely imposes serious loss of time.

A further influence that warrants a marked departure from grade separation practice of the past, as applied to cities, is the general tendency to concentrate the flow of through traffic on especially designed thoroughfares, leaving the remaining streets to serve primarily as a utility for the local property holder. Because of this change in street utilization, as well as considerations

Work on Structures of This Type Can Be Undertaken With a Minimum of Delay

affecting the maximum development of property abutting a railway line, all interests are best served if the number of streets carried over or under the tracks in the course of a grade separation is confined to those forming a part of a thoroughly developed urban transportation system. A thorough-going application of this principle to grade separation projects of the future will result in appreciable economies.

Much Has Already Been Done

From 1920 to 1931, inclusive, the capital charges of the Class I railways on account of grade separation work amounted to $233,165,615, and it is estimated that an equal amount was expended by public authorities. The cost of individual separations varies from less than $10,000 (where the topography is especially favorable) to more than $100,000, with a general average figure of $30,000 to $40,000. What the total bill would be for a complete elimination of highway-railway grade crossings is anybody's guess, but any figure, however arrived at, would possess only an academic value, because it would not be necessary to eliminate anywhere near all the crossings to remove most of the hazard. One railway executive has found that the elimination of five per cent of the grade crossings on his line would remove 50 per cent of the hazard. At an estimated average cost of $40,000 this would involve an expenditure of less than 500 million dollars for the entire country.

For a long time following the inception of the movement for grade separation, public authorities proceeded on the assumption that all, or nearly all, of the cost must be borne by the railways, and most of the earlier projects were prosecuted under agreements embodying this unwarranted provision. Eventually the injustice of this was recognized in the assumption of ever-increasing proportions of the cost by municipalities, counties and states. Realizing the inability of the railroads to finance what was deemed their share of an ambitious program of grade separation inaugurated by the State of New York, Governor Alfred E. Smith initiated a movement for an amendment of the state constitution, ratified in a referendum of November 3, 1925, under which the credit of the state is extended to the railroads in the prosecution of such projects.

The Public Pays in the End

This plan has accelerated grade separation work in the Empire State, although not to the extent that its sponsors had anticipated, but it had a wholesome collateral effect because of the widespread publicity it received. The fact that the State of New York proposed to finance $300,000,000 worth of grade separation was news, but, more important, it afforded the first real object lesson in the potential magnitude of the cost of a comprehensive grade separation program. And with this came the realization that regardless of the division of the cost as between the railways and the states, or the municipalities, the public would have to pay the bill in the end, either in the form of higher rates for transportation or higher taxes, or both. The fact that grade separation costs real money has been driven home to the taxpayer in another way, for the progressive increase in the proportion of the cost that is being imposed on the city, the state or the country has directed specific attention to the problems of financing such projects, as there are many cases in which grade separation work has strained the borrowing powers of cities and towns as much as it has the credit of the railroads involved.

The Public Works Program

For the last two years the federal government has been engaged in a herculean effort to solve the problem of unemployment. Reluctant to adopt measures that would constitute a dole *per se,* it has endeavored to increase the volume of useful employment by fostering programs of public works. The credit of the government has been extended to such local improvements as offer promise of self liquidation, and, in addition, direct appropriations have been granted for vast projects that are presumed to be of such widespread benefit that liquidation through other means than general taxation has been deemed unwarranted. Under this head, special funds were provided for emergency construction on the federal highway system, with a definite stipulation that any part of the amounts allocated to the individual states could be expended for the "elimination of the hazards to highway traffic."

While the authorities in some states and the managements of a few railways did not take full advantage of the opportunities afforded by these provisions for the elimination or protection of grade crossings, much has been accomplished. In 32 states, from which information has been received, more than $23,000,000 of federal money has been allotted to 435 grade separation projects, 10 eliminations by relocation and the reconstruction of 8 old structures, in accordance with agreements arrived at between the state authorities and the railways, and a large proportion of the work has been completed. In addition, 13 of these states have allocated more than a million dollars for improved protection at 811 grade crossings, including 557 installations of automatic signals. The most comprehensive program is that of the State of Illinois, which has allotted $6,680,000 to 101 grade separations, and set aside $475,000 for flashing light signals at 297 locations and $25,000 for reflector type signs at 354 crossings.

The inception of this program was delayed in some measure while the plan of procedure was being developed, but, as has been shown above, commendable progress has been made, and thanks to negotiations entered into between representatives of the U. S. Bureau of Public Roads, the states and the railways, thorough-going organizations have been set up for the prompt advancement of new projects. Further than this, the idea of the use of federal funds for grade crossing elimination and protection has stimulated activity in the prosecution of surveys for the purpose of selecting the crossings most in need of attention. As a consequence, the administrative machinery for the handling of grade crossing elimination or protection has been developed to a point that will insure immediate action. No better evidence of this is necessary than the fact that the state highway administrators are now preparing lists, in response to a request from Thomas H. MacDonald, chief of the U. S. Bureau of Public Roads, of a large number

Progress in the Allocation of Federal Highway Appropriations to Grade Crossing Protection

No.	*State*	*Approx. Amount*	*Year*	*Approx. No. Crossings*
1	Nebraska	$1,650	1933	1
2	North Carolina	250,000	1934	86
3	Minnesota	30,000	1934	12
4	Florida	8,000	1934	4
5	Wisconsin	100,000	1935	
6	Illinois			
	Signals	475,000	1934	297
	Reflector Signs	25,000	1934	354
7	Washington	14,000		7
8	Oregon	16,000		8
9	South Carolina	50,000		
10	Virginia	35,000		
11	Michigan			28
12	Mississippi			6
13	Utah			8

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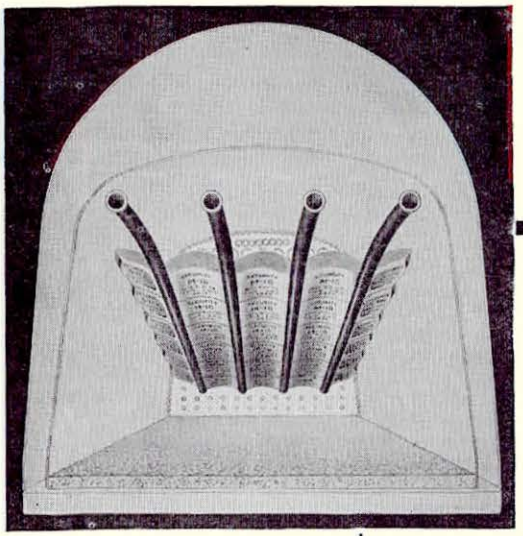
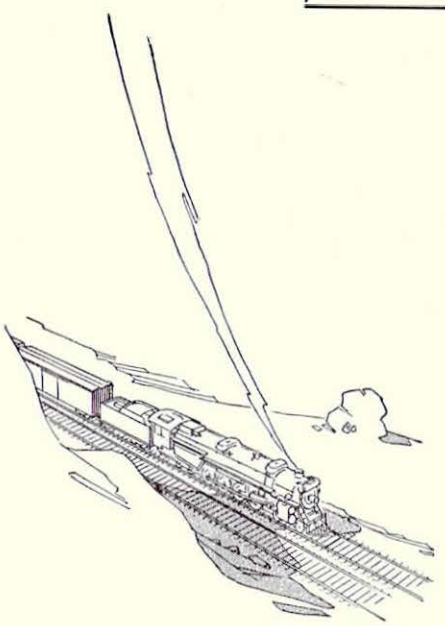


THE BRICK ARCH

is primarily

A SAVER OF DOLLARS



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But to secure this full economy be sure the full arch is maintained as originally designed.

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

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AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists

of grade separation projects that can be started in 30, 60 and 90 days. Mr. MacDonald has submitted estimates to the Public Works Administration covering the allocation of $125,000,000 for railway-highway grade separations, it being his understanding that this would be a direct grant to cover the costs of such work and be made available within the next 90 days.

An Opportunity

Projects for the elimination or protection of grade crossings have much to commend them as instrumentalities for unemployment relief. Foremost among the advantages is their wide geographical distribution, which, by the way, is more nearly in proportion to the density of population, and therefore the intensity of unemployment, than almost any other type of public work. They offer employment for both skilled and unskilled workmen. They afford opportunities for the exercise of a choice in the selection of the materials to be used, and the purchase of these materials introduces a still further distribution of employment. In addition, the need for machinery will stimulate various branches of the capital goods industry.

This is the position taken by Harold L. Ickes, public works administrator, in a statement released on November 15, directing attention to the need of work that can be completed in three or four months after authorization. He referred particularly to grade crossing elimination as one kind of work in a class that, "can be widely distributed over the country, can be undertaken even in the northern winter period, and can employ a large proportion of comparatively unskilled labor in field work. Such work would have a very definite social value."

Because the various measures adopted by the federal administration during the summer of 1933 failed to provide the anticipated stimulus to employment, the C.W.A. program was undertaken as a special emergency measure, but because of the lack of opportunity for adequate planning, most of the work done was of little permanent or even temporary value, while the absence of centralized control gave rise to an enormous volume of petty abuses. As a consequence, the program was dropped at the earliest opportunity.

In contrast with the C.W.A. work or any plan of a like character, the use of federal funds for a reduction in the hazard at grade crossings would be conducted under administrative machinery that is already in existence, on projects that have already been studied and in accordance with plans already in the preliminary stage. But more than this, any money that is spent for grade separation or protection now will be spent in the advancement of a program that will be carried out eventually in response to the insistent demands of the users of the highways. This point was set forth emphatically in the report of the Committee on Grade Crossings, Elimination and Protection at the recent convention of the National Association of Railroad and Utilities Commissioners as follows:—

> It may be well, however, to point out that in comparison with many other forms of unemployment relief, the elimination of grade crossings is a measure that has fundamental economic soundness, because a large part of such outlays goes for labor either immediately on the job, previously in the provision of materials, or in supervision. Then, too, the necessity is greater in the congested centers, where the elimination of dangerous grade crossings is most necessary and unemployment is greatest. The use of public moneys for grade crossing elimination results in the accomplishment of a much needed public improvement, which measurably increases public safety.

A resolution offered by this committee and adopted by the association read in part as follows:

> The National Association of Railroad and Utilities Commissioners urgently commends to the consideration of the President of the United States the desirability of immediate appropriation, out of funds made available by the Congress, of substantial sums to be expended in the several states, for the purpose above set forth, upon such projects as may be recommended and approved by proper Federal and States authorities.

Objection has been raised to the outright appropriation of federal funds to cover the entire cost of such work on the ground that the improvement would result in some benefit to the railroads, which occupy the not altogether enviable status of private undertakings conducted for profit. But in view of the fact that the primary result of such improvements is a freer flow of the traffic of transportation agencies that are competing actively with the railways, the benefits accruing to the rail carriers are of an exceedingly evanescent character. It must be remembered, also, that until now, at least, such improvements have been deemed additions to the physical properties of the railways for which they are penalized by increased valuations for the assessment of taxes. However, in view of the record of federal appropriations made under the guise of improvements in interstate commerce which have resulted in the taxation of many for the benefit of a few, there appears no good reason for strictures on the score of possible benefits to the railways in this case.

* * * *

New Passenger Station Recently Placed in Service by the Pennsylvania at Norristown, Pa.

Railways Organize for Self-Help

Association of American Railroads provides for effective centralization of authority

RESPONDING to new conditions confronting the railway industry as a result of the business depression and the growth of unregulated competition by other agencies of transportation, the railways have recently taken one of the most important and significant steps in their history by organizing themselves into a new association and delegating to it almost plenary power to act for the roads as a whole.

The new organization, the Association of American Railroads, was formed by a consolidation of the American Railway Association, the Association of Railway Executives, and other organizations which had been in existence for many years but whose authority was limited.

This aggressive and determined effort to deal with common problems has been described as the most important move made by a great American industry for self-regulation, self-protection, and self-advancement. For one thing, it is expected to eliminate some of the manifestations of the "rugged individualism" which has sometimes prevented the railways from co-operating as effectively as they might in measures calculated to promote the welfare of the industry as a whole. By providing for a more effective centralization of authority over many matters of common interest than has ever before existed in the railroad business, it is believed that the railroads have paved the way for a greater degree of co-operation in the direction of the policies that are being advocated by Co-ordinator Eastman in accordance with the policy indicated by the Emergency Transportation Act of 1933, for the purpose of reducing the needlessly expensive duplications of facilities and service that have resulted from the competitive policies which have been so long encouraged and even required by earlier regulatory laws.

Need For a "More Perfect Union" and Some Other Things

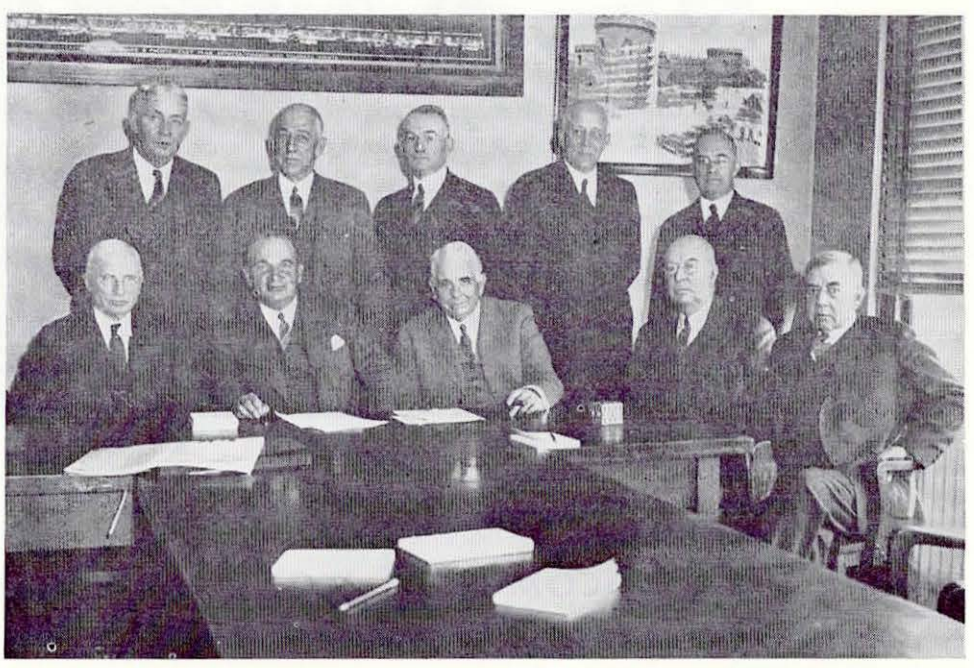
The adoption of the plan for creating a more effective organization to represent the railroads was undoubtedly hastened by the position taken by Co-Ordinator Eastman in his report to the President and Congress last January in which he said: "The general situation is one in which the numerous separate owners and managers of individual parts of the single railroad system are in need of a 'more perfect union,' just as the states were prior to the Constitution." However, in addition to the purpose of the association to provide machinery by which the railroads may be enabled to co-operate more effectively as a national transportation instrumentality, its aims also include the creation of an organization to represent the railroads more effectively in their public relations, such as in seeking federal and state legislation to equalize terms of competition in transportation, as well as in opposing proposed inimical legislation.

In other words, to carry Mr. Eastman's analogy a step farther, while the railroads have agreed with him that they needed to "form a more perfect union," they also had in mind other objectives also stated in the preamble of the Constitution, and desired as well to "establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty" to themselves and their posterity.

This action of the railroads is also significant as indicating their recognition of the fact that they are confronted with an emergency comparable in magnitude and difficulty with that which led to the formation of the Railroads' War Board in 1917.

Controversies to Be Settled By Arbitration

An important feature of the plan is that it is declared to be the policy of the association that all controversies between members should be settled by arbitration, and all members of the association have agreed that, in any controversy over which the board of directors has assumed jurisdiction and which it has decided by the affirmative vote of three-fourths or more of its members,



Some of the Directors of the Association of American Railroads at a Recent Meeting in Washington, D. C.

Wide World Photo

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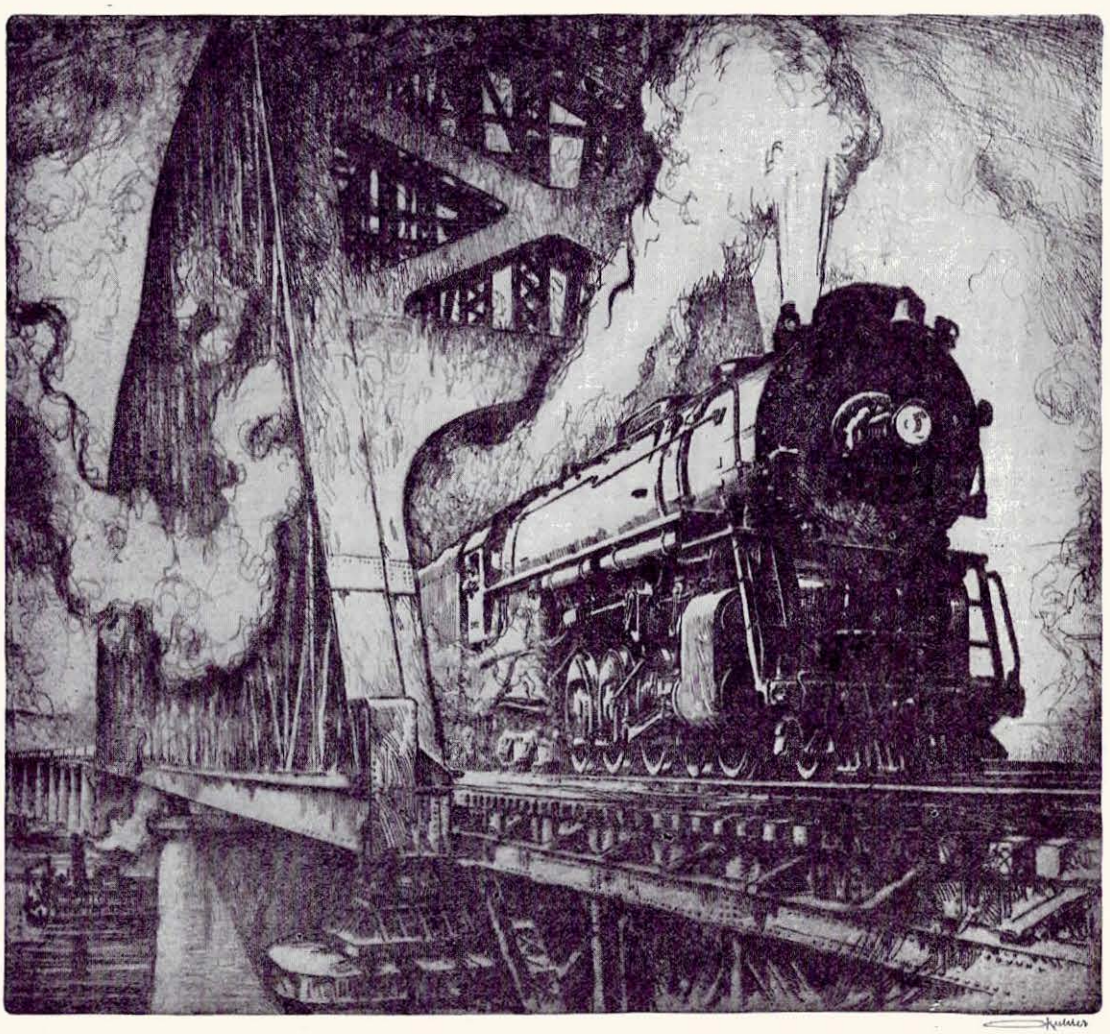

LIMA LOCOMOTIVE WORKS, INCORPORATED LIMA, OHIO

NATION'S ILLS

RAILROADS

Stabilization of industry is impossible until the Durable Goods Industry is re-established.

In normal times the Railroads of the United States constitute one of the largest purchasers of durable goods. They have pulled the country out of past depressions and will do so again if given support.

Co-operative effort on the part of the National Administration, the Railroads, and the Durable Goods Industry will lead the way to economic recovery.

The Railroads are the barometer of the country. Improvement in economic recovery and reduction in unemployment will be in direct proportion to the increase in Railroad purchases for capital expenditures, materials and supplies. Their purchases of these items in 1933 were only 20% of the amount expended in 1923.

Remove the bar to economic recovery by making possible increased Railway earnings and purchasing power through constructive legislation and administrative action.

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they will accept and carry out such decision or, within 20 days, institute arbitration proceedings in accordance with provisions of the plan, one of which is that the awards of the arbitrators shall be conclusive and binding.

In other words, when the board of directors has adopted a positive policy, a railroad has only the choice of abiding by its decision or that of the arbitrators or of ceasing to be a member of the association, which would handicap it considerably in its business relations with the other roads. A majority of the board of directors constitutes a quorum for the transaction of business but a vote of the majority of the board is required for decision. Any member of the board may declare a question controversial and on a controversial question a three-fourths vote of the board is necessary to a decision. The plan requires that no decision shall be reached nor any order made against any railroad company with respect to any controversial question without notice and opportunity to be heard.

The new association is being organized into departments and divisions to deal with all the numerous classes of transportation problems, although the organization process is not yet completed. For example, the Planning and Research and the Operations and Maintenance departments can co-operate in investigating and deciding where duplications can be eliminated and many other things done with advantage both to individual lines and the industry, making use of information being compiled by the Co-Ordinator's staff and the Regional Co-Ordinating Committees of the railroads, although they will continue to be handicapped, until the law is changed, by the restrictions upon economies that will reduce employment, just as Mr. Eastman has been so handicapped.

The creation of a central Traffic department representing the railroads is also an entirely unprecedented development, although they have had many regional and sectional traffic bureaus and other organizations which have attempted to deal with common problems in rate-making. It is expected that the new department will study and supervise rate-making in an effort to promote advance or reductions in rates which are in the interest of the entire industry and to prevent such reductions as have often been forced by the action of individual lines under the pressure of big shippers and communities.

Announced Purposes of the Railway Executives

The railroad executives who have formulated the plan have stated that they regard it as a "concerted effort to protect and advance the railroad industry under private ownership and management, to enable them better to handle their own affairs on a permanent basis, as well as to co-operate more effectively with the government in constructively working out a program in the interest of the owners of the railroad properties, their employees, and the public."

"The railroads recognize," they announced, "the need for a forceful, independent organization to act in the capacity of a general staff for the railroads as a whole, merging under one authoritative direction the activities of the present railroad associations and organizations. The new organization will take the initiative in attacking the problems which confront the industry, retaining the beneficial activities of existing regional groups and instituting energetic study and action on all subjects related to American railroad progress.

"It is the purpose of this movement to include every phase of railroad transportation and to employ every constructive approach, not merely in the solution of difficulties, but in hastening and directing the improvement and development of the industry.

"The present situation of the railroads, as well as their future part in the economic growth of the country, calls for constant, inspiring leadership and direction which can be attained only through initiative and co-operation within the industry. The Association of American Railroads is being established to achieve this co-ordination in such a way as will best promote the best interests of each road by advancing the common welfare of all.

"The existing regional organizations and their related and subordinate organizations will preserve their identities and activities, co-operating with the Association of American Railroads."

The plan was approved and adopted at a joint meeting of the executives of roads which were members of the American Railway Association and the Association of Railway Executives at Chicago on September 21 and was declared operative at a meeting of its board of directors in New York on October 12, after written agreements assenting to the plan had been executed by 88 railroads or systems, representing 247,048 miles of railroad, or over 83 per cent of those eligible. Many of the officers were not elected, however, until after November 1 and the new organization has only recently begun functioning.

According to the statement of the plan the organization was "created to deal expeditiously and effectively with all matters of general interest to the industry," within the scope of the preamble, which stated that "in order to promote trade and commerce in the public interest, further improve railroad service and maintain the integrity and credit of the industry, the railroad companies of the United States do hereby establish an authoritative national organization which shall be adequately qualified and empowered in every lawful way to accomplish said ends where concert of policy and action are required. For the purpose of facilitating the realization of this constructive object, the members do hereby declare that these announced policies shall be authoritative and will be supported."

All American steam railroads, except those operating less than 100 miles of road and except those operated primarily as plant facilities, are eligible to membership and the board of directors may admit to membership railroad, switching or terminal companies with annual operating revenues in excess of $1,000,000.

Plan of Organization

The president of the association, J. J. Pelley, who was president of the New York, New Haven & Hartford, is to devote his full time to its affairs, with office at Washington, receiving a salary equal to the maximum paid by any railroad. He acts under the general supervision and control of a board of directors consisting of himself and 14 chief executives, 5 of them from eastern territory, including New England, 6 from western territory, and 3 from southern territory. The executive committee consists of five members of the board of directors, selected by the board, and the president of the association who is ex officio chairman of the board and of the executive committee. The executive committee is considered as being in continuous session, giving to the affairs of the association such time as may be necessary, and offices for its members have been established for that purpose at the association headquarters in Washington, although the members retain their responsibilities for the management of their own properties.

During the interval between the meetings of the board of directors the executive committee possesses and may exercise all the powers of the board, reporting its action to the next meeting of the board for approval.

The executive committee, according to the plan, is to "interest itself in matters affecting the railroad industry and shall recommend to the board of directors and to the members such constructive policies as will promote efficiency and economical operation. Whenever requisite, it will accompany its recommendations with suggested rules and regulations to insure the execution of the determined policies."

The president is assisted by five vice-presidents in charge of the five departments of the association: I—Law; II—Operations and Maintenance; III—Traffic; IV—Finance, Accounting, Taxation and Valuation; and V—Planning and Research. The vice-president of the law department also serves as general counsel of the association. The work of the several departments is to be subdivided into such divisions as the vice-president in charge may direct, with the approval of the president and the board of directors, and in each of the departments there are to be established such committees as may be deemed necessary for the subjects to be covered and the activity required upon these subjects. The members are to be selected from the various geographical sections of the country to insure adequate representation of the experience and practice of the member roads and are to give such co-operation to other committees as may be required.

Standards, rules, regulations and decisions of the association are to be promulgated under the direction of the president, subject to the approval of the executive committee. Standards, rules, and regulations may be established by the member roads by majority vote at any regular or called meeting or by letter ballot as the exigencies of the occasion may demand. The voting power of the members, in questions affecting physical property, is to be proportionate to the ownership of equipment or miles of track, whichever may be applicable.

The Executive Committee

The members of the executive committee are: J. J. Pelley, Chairman ex officio, president, Association of American Railroads; Daniel Willard, president, Baltimore & Ohio; F. E. Williamson, president, New York Central Lines; J. J. Bernet, president, Chesapeake & Ohio and Pere Marquette; C. R. Gray, president, Union Pacific system; and H. A. Scandrett, president, Chicago, Milwaukee, St. Paul & Pacific.

Departments

The Law Department, headed by R. V. Fletcher, formerly vice-chairman and general counsel of the Association of Railway Executives, as vice-president, and general counsel, is to deal with questions of legislation, governmental action and policies, and matters of a legal nature which, in the opinion of the board of directors or of the executive committee, will affect the members of the association, and with such other matters of a related nature as may be referred to it by the president.

The Operations and Maintenance Department, under J. R. Downes, formerly assistant vice-president of the Pennsylvania, as vice-president, is to deal with all matters pertaining to operating, car service, transportation, equipment, telephone and telegraph, signaling, maintenance and construction engineering, purchases and stores, inspection, freight claims, and such matters of a related nature as may require attention or may be referred to it by the president.

The Traffic Department, headed by Augustus F. Cleveland, formerly vice-president of the Chicago & North Western, as vice-president, is to deal with all matters of a traffic nature, both freight and passenger, and such other matters of a related nature as may require attention or may be referred to it by the president.

The Finance, Accounting, Taxation and Valuation Department, is to deal with all phases of accounting, financial and taxation activities and such other matters of a related nature as may require attention or may be referred to it by the president.

The Planning and Research Department is to absorb the work of the Bureau of Railway Economics and is to have charge of research problems affecting carriers, providing properly digested information for other departments. It is also to be the source of fundamental technical information and to deal with all matters pertaining to the analysis and study of all phases of transportation operations, with special attention to improvements in present methods and practices, and research leading to the correlation of all forms of competitive transportation, pure and applied science, materials and construction, special statistics and reports, and with such other matters of a related nature as may require attention or may be referred to it by the president.

Eastman Sees Promise of Substantial Benefit

The announcement that the railroad executives of the country had agreed upon one national railroad authority to deal effectively with all matters of national interest was greeted by Co-ordinator Eastman in a public statement that it was "gratifying" and "a step in the right direction which offers promise of substantial benefit to the railroads and also to the country." President Roosevelt, who, like Mr. Eastman, had been consulted in advance about the plan, also indicated his approval.

"For a long time," Mr. Eastman said, "the need for a better central organization of the industry which could act authoritatively, somewhat in the capacity of a general staff, has been evident. While the railroads are owned by many separate and independent companies, they really operate to-day as parts of a national railroad system, for cars are freely interchanged and move all over the country, through routes and joint rates abound, and joint operations are now, on the whole, of more importance than local operations. Because of this situation there are many matters of common concern to all of the railroads and to the industry as a whole which emphatically require central leadership and should be governed by common policies.

"Existing central organizations have done good work in many respects, but the bonds of union have been so loose that needed collective action has been hampered and the individual companies have often worked at cross purposes with each other. The fact that the railroad executives have now recognized this weakness in their situation and are endeavoring to correct it augurs well for the future of the industry. The railroads have been, are, and will continue to be essential to the welfare of the nation, and under proper stimulus and guidance I believe that there are large opportunities for the development and improvement of service and operation and for co-ordination with other forms of transport which will benefit shippers, travelers, labor, investors, and the entire country. The new organization is consistent with the work which I have been endeavoring to do under the Emergency Transportation Act, 1933.

"The new railroad organization is, of course, not a complete answer to the entire transportation problem, but it should supply one part of the answer. My understanding, I should add, is that it will not disturb in any way the safeguards which have been set up through law for the protection of those who use the railroads and of the general public interest. Its operations will be subject in all respects to those safeguards."

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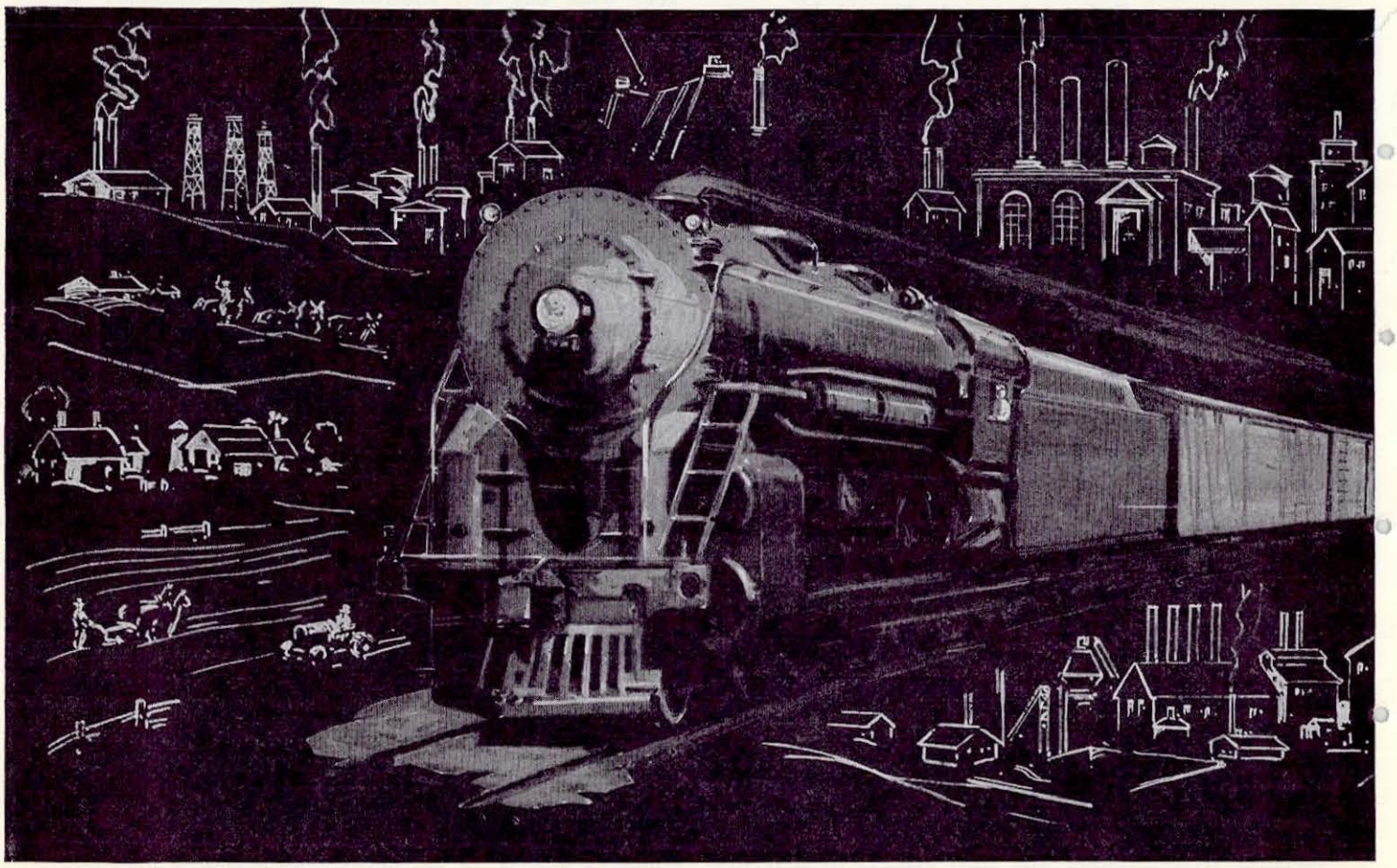
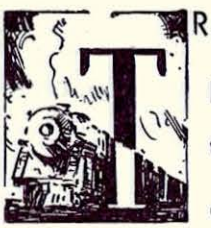
RAILROAD PROSPERITY

MEANS PROSPERITY TO ALL





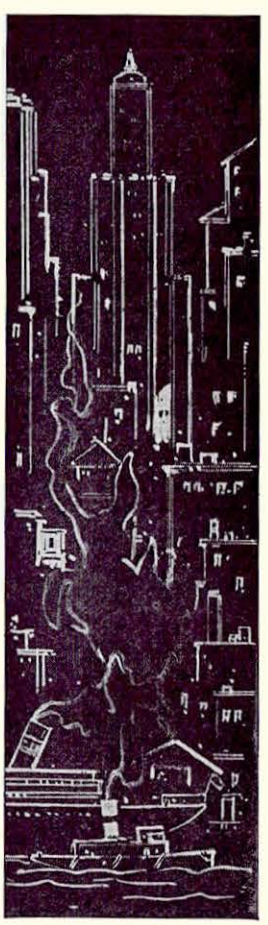
RANSPORTATION is a fundamental to any prosperity in this country and the railroads are the basis of all transportation . . . Limitations of railroad activities by governmental regulation while competition operates unhampered, and in many cases with government aid, drastically reduces railroad income and correspondingly reduces railroad purchasing power.

This reduced railroad purchasing power, directly and indirectly has adversely affected practically every industry throughout the country by reducing the purchasing power of almost 3,000,000 workers normally employed by the railroad and railroad supply industries.

Fair and uniform regulation of all transportation means throughout the country would permit economic railroad operation and immediately start expenditures for capital goods by the railroads.

It would return to gainful occupations many thousands of men in every manufacturing state in the Union.

It is one of the first essentials to the return of normal prosperity.



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Relationship of Short Line Railroads to National Transport*

W. L. White

Must be continued in operation in public interest and in interests of trunk lines with which they are so closely bound in their economic necessities

By W. L. White

President, American Short Line Railroad Association

I HAVE often been asked to define a short line railroad, and the most apt description that I have ever heard is a road that is short in both mileage and revenues. Generally speaking, however, a short line is one that is classified by the Interstate Commerce Commission as a Class II and Class III line or a road having gross annual revenues of less than one million dollars. This description is not very definite, but it is the best broad classification we have.

There are approximately 570 of such roads, representing, in round figures, 15,000 miles of track, located in 46 states of the Union, serving 12,000 communities and industries, and furnishing transportation to a large territory, much of which is in the process of development.

A large proportion of this mileage was originally constructed to move mineral, forest and farm products out of the regions that were then inaccessible. Villages, towns and farming communities were gradually founded. Hundreds of important industries were established, all of which are now dependent on the short line railways.

The present great railway systems of this country were at one time short lines that have since been linked together. Altogether more than 6,500 short line railroads have been consolidated into these great systems, with the result that a majority of our trunk line mileage consists of these pioneer short line railroads.

Importance of Short Lines

There is no railroad today, large or small, which is completely self-sustaining. That is, no such road originates and delivers on its own rails sufficient traffic to afford it a living. The trunk lines and the short lines are so closely bound together in their economic necessities that the loss of traffic which the short lines produce would have a very serious effect upon the volume of traffic and the financial operation of the trunk lines. It becomes necessary, therefore, in the interest of the trunk lines, that these short lines be continued in operation.

An idea as to the large part the short line railways play in the general transportation industry may be had by referring to a recent order of the Interstate Commerce Commission in Docket No. 15234—*In the Matter of Divisions of Freight Rates in Western and Mountain-Pacific Territories,* in which the Commission states that, according to an exhibit of the transcontinental railroads, about 55 per cent of the tonnage of the eastbound and about 20 per cent of the westbound, and about 47.5 per cent of all the transcontinental traffic originated or terminated on branch or short lines in transcontinental territory.

It is true, of course, that it is greatly in the public interest that those short lines which are a public convenience and necessity should be continued in operation. The loss of rail service to patrons served by the short line railroads is just as serious to them as the loss of rail service to the patrons of the larger carriers. Long experience has demonstrated that the abandonment of a short line railroad, or a branch line, results in serious economic losses to the people in the territory served.

In a recent case before the Interstate Commerce Commission, where authority was sought to abandon a short line in Virginia, county authorities testified that the abandonment would greatly diminish the taxable value of the timber and mineral lands, and injure the principal source of revenue of the community. They stated that sole dependence on trucking throughout this territory would result in much inconvenience and hardship, if it did not stop virtually all future industrial development. In that case the commission put the proposition as a whole up to the shippers and passengers, and told those interested in the service that they could not expect to retain it in the future unless they furnished traffic sufficiently adequate to maintain and operate the line.

This is by no means a railway emergency exclusively. It touches every citizen in the communities it serves. In addition to the security of wage and employment of railway personnel, it affects equally the employees of many important industries supplying rail equipment and materials. It touches the financial problems of state and national governments. It has a vital bearing on the upkeep of local community institutions now so largely financed and supported by railway taxes. Where the

* *From an address before the Tri-State Traffic Club, Pittsburg, Kans., on November 20, 1934.*

line abandoned is a small line which had furnished the sole rail service, the result is still more serious. Heavy materials, such as fuel and lumber, must be trucked in, at an increase in cost, and with liability for delay when haste is most needed. Likewise, the products of the territory must be trucked out. The abandonment of a short line railroad necessarily has its effect upon the trunk line with which it connects, because it means just so much diminution of traffic for the trunk line.

The short line railroads are in a peculiar position to render service to shippers. Experience has shown shippers that their transportation needs are given direct personal attention by the officials of the short line railroads, largely because they are so situated that they can render this service, but also because they are, for the most part, "home industries."

Many of the short line railroads enjoy connections with two or more trunk lines. Shippers on such short lines, therefore, have all the advantages they would have if they were located directly on all of those trunk lines, so far as car supply and other matters are concerned, and, in addition, they have the advantage of dealing with railroad employees who are thoroughly acquainted with their problems and are able to render them expeditious and cooperative service.

Congress and the Short Lines

When Congress was considering various bills, during the process of enactment of the Transportation Act of 1920, it recognized that the problem of the short line railroads was of paramount importance. Practically every member of the committees handling this legislation had short line railroads in their districts, and knew their conditions. It was realized by every one that the Interstate Commerce Commission could not make rates which would produce just and reasonable returns for these small roads without giving the benefit of such rates to the larger and stronger roads, and that this would result, so far as these strong roads were concerned, in an excess of what Congress regarded as a fair return. If, on the other hand, the strong roads were limited to a rate that would produce a fair return for them, the great majority, if not all, of the short lines could not continue to exist. Congress was very sympathetic with the position of the short line railroads generally, because it had come to have an understanding of their problems. At the same time it was realized that the preservation of these roads was essential in the public interest.

In order to enable the short line railroads to continue in, and function as a part of the national transportation system, special provisions designed to solve their problems were inserted in the Transportation Act of 1920. The fundamental thought back of all these provisions was the preservation of the short line railroads as a part of our national transportation system.

Unfortunately, however, for one reason or another, these provisions failed to accomplish the purposes sought by Congress, and many of the short line railroads have been forced to abandon operations. From the enactment of the Transportation Act, in 1920, to December 31, 1933, 184 short line railroads were entirely abandoned, while 137 of them abandoned a portion of their line. There was a total short line mileage of 5,835 miles abandoned in that period of time. That record, however, is not out of line with the abandonments of the trunk lines. During the same period the trunk lines abandoned 4,843 miles of line, 4,318 miles of which were what we generally call branch line mileage. According to the best available figures, there were 805 short line railroads in the United States in 1929. The number has now been reduced to about 570. Of course, the abandonment of a number of the short line railroads was brought about by virtue of the fact that the traffic which they were originally built to transport had become completely exhausted, and the road had served the purpose for which it was constructed. However, many of these roads whose transportation service was vital to the people in the territory served by them had to be abandoned because of general economic conditions and inadequate regulation of their competitors. The short lines, like the larger lines, are suffering from the general economic depression.

Financial Problems and Competition

The short lines have had comparatively little success in borrowing money from the Reconstruction Finance Corporation or the Public Works Administration, due to their inability to deposit the required collateral as security for these loans. The fact that so large a percentage of them have been able to operate during the past few years under these very trying conditions, following the failure of the plan adopted by Congress for their continuation and preservation, is convincing evidence of the fact that they are serving a real public need and constitute a vital part of our national transportation system.

In their financial distress, they have a great deal of company. About 70 per cent of all the railway mileage of the country is being operated at a deficit this year. The railroads sell nothing but transportation service. They cannot move traffic if it is not there to move. Consequently, they cannot be prosperous unless the country is prosperous. But, while a substantial improvement in general economic conditions will early reflect itself in railroad earnings, the troubles of the railroads will by no means end with the depression.

During the past decade we have all witnessed the remarkable development of other forms of transportation. The short lines have suffered greater proportionate losses than have the larger roads, chiefly because the shortness of their haul makes it impossible for them to recoup on long haul traffic the revenue lost by the diversion of their short haul traffic.

The short line railroads, as well as the trunk lines, are asking that all competitive transportation agencies should be so regulated, by the same tribunal, as to accord equality of opportunity for service. They do not seek public regulation for the purpose of stifling any of their transportation competitors. They *do* want them all regulated and co-ordinated in order that a real national transportation system may be developed. This will be in the best interests of all concerned.

Congress and the several state legislatures should take immediate steps to place all commercial transportation on the highways under the same measure of regulation that applies to railroads so far as the nature of the business justifies such action. This applies to rates, certificates of convenience, hours of service, accounting, report, taxation, and the like. It may be safely asserted that the necessity for such regulation is recognized by the great body of informed public opinion in the United States.

Congress should take immediate action to regulate the rates, service, and practices of carriers by water whether intracoastal, intercoastal, on the Great Lakes or an inland natural and artificial waterways. Such regulation, in so far as the nature of the business will permit, should be similar to that applied to railroads. This policy is recommended by the Federal Co-ordinator, by the Interstate Commerce Commission, and very generally by those who favor regulation of highway transportation.

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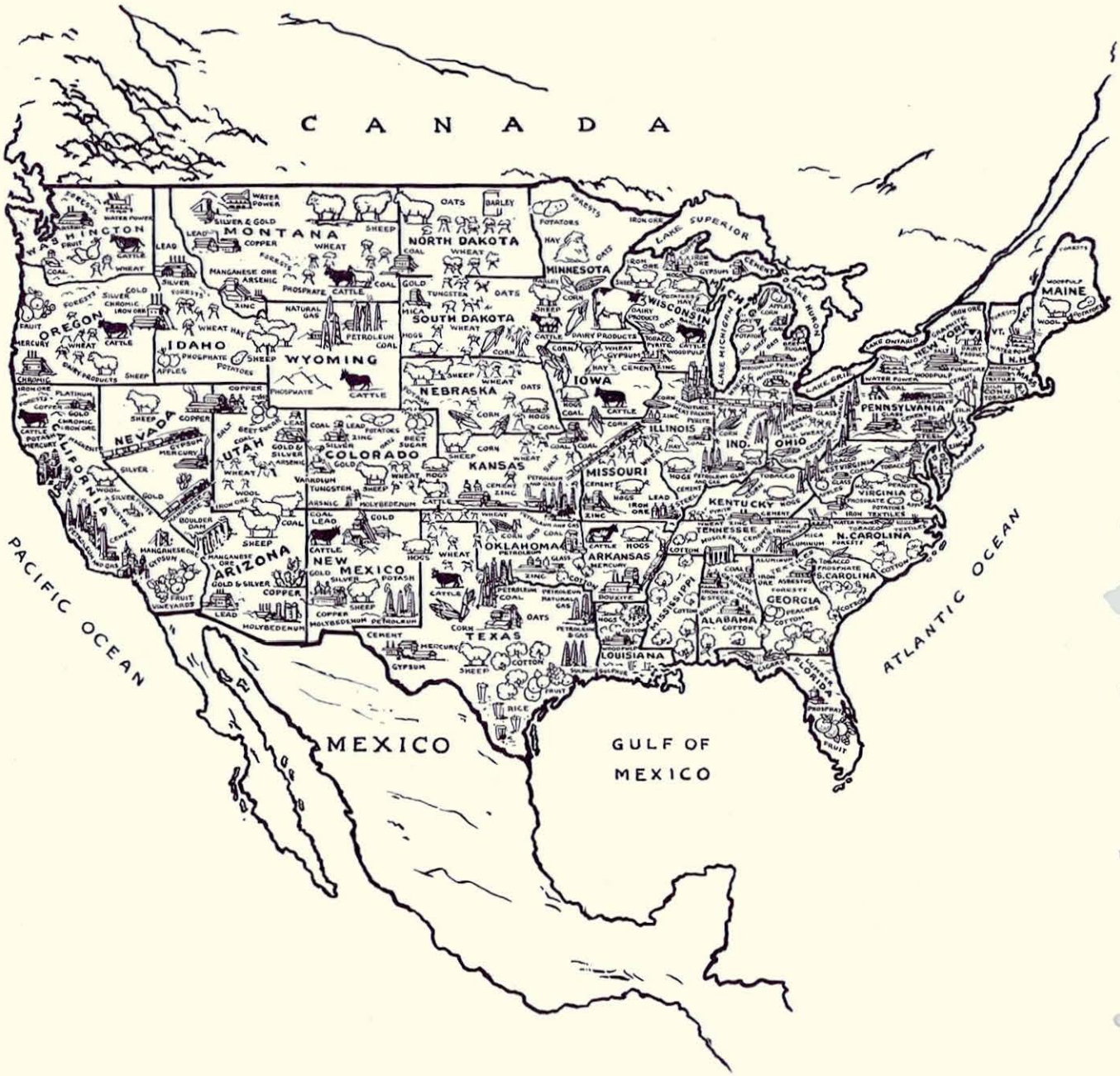

ELESCO

American Prosperity——

Depends on Ability of the Railroads to Serve

The railroads are fundamental factors in restoring prosperity to the country.

First, as the major transportation means that make possible industrial activity and social life.

Second, as one of the largest consumers of practically every type of product produced throughout the country.

By enabling the railroads to buy the things they need to render efficient, economical transportation service there is immediately created a market for goods running into billions of dollars.

Given an opportunity to render service on an economic basis the railroads would be the means of returning to gainful occupation hundreds of thousands of workers in practically every industry in the land.

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NEWS

Eastman Urges Regulation Of Water Carriers

THE need for federal regulation of all important forms of transportation, including water carriers and their port-to-port rates, was discussed by Joseph B. Eastman, federal co-ordinator of transportation, in an address before the Mississippi Valley Association at St. Louis, Mo., on November 26. If transportation which is competitive ought not to be regulated, he said, railroad regulation could be reduced to very small proportions, but unregulated competition would destroy, instead of provide, the kind of national transportation system which the country needs. He said he believed he could show that the present development of water transportation in the Mississippi valley has been dependent upon the regulation of the railroads.

Mr. Eastman also discussed the question as to whether water carriers are subsidized, on which he is expected to submit a report shortly, saying it had not yet been completed but that when there has been a segregation of government expenditures on waterways for navigation purposes, he saw no logical escape from the conclusion that they must be taken into consideration in determining the total cost of navigation on the waterway, along with the operating expenses and overhead charges of the boats. So long as the waterway can be justified on sound economic grounds, he said, no one has a right to complain but "there is ground for complaint if a substantial part of the cost is to be borne by those who are not directly benefited," and especially if this results in unfair injury to competitors. Mr. Eastman said in part:

"I think you will agree that federal regulation of the railroads, with respect to fourth-section departures, the establishment of joint rates with connecting rail lines, and the fair division of those rates, has had much to do with the rebirth and growth of water navigation in the Mississippi valley. Not only that, but the water lines continually invoke the power of the commission to check railroad rate-cutting. This is true not only of the barge lines, but also of the coastwise, intercoastal and Great Lakes carriers. Such appeals have not been as successful as the water lines would like, but the crux of that trouble is that the commission does not have complete control over the situation. It has no authority over the port-to-port rates. Until that deficiency is cured, the trouble will remain.

"Since I became Co-ordinator, I have had plenty of evidence of the concern of both the rail carriers and the water lines over these rate wars. I have several times been importuned by water lines to bring about joint conferences between the two groups of carriers for the purpose of ironing out their differences, and this I have endeavored to do, although it is no part of my duty under the law. But the root of the trouble will not be reached until regulation is made co-extensive with the evil.

"The statement is made that the shippers do not want regulation of port-to-port rates. We have plenty of evidence to the contrary. Two or three years ago a port-to-port rate was proposed on cotton from Memphis to New Orleans, and the proposal precipitated a small-sized riot in which many shippers joined on one side or the other. It was necessary for the Secretary of War with the aid of the commission to improvise a rate tribunal to consider this matter. Last Spring the question came up again, and I helped to some extent to compose the controversy.

"Why, when all the rates of their rail competitors are regulated, to the great advantage of the water lines, should their own rates be exempt? The answer is given that the railroads are monopolistic, whereas port-to-port traffic is inherently competitive. The fact is that there has always been keen and widespread competition in the railroad field, between the railroads themselves and with the water lines. Now the railroads are beset on all sides by the further competition of the private automobile, the truck, the bus, the air plane, the pipe line, and the electric transmission line. If transportation which is competitive ought not to be regulated, railroad regulation could be reduced to very small proportions; and there is strict logic in such a proposal, if the entire field is not to be covered by sane and comprehensive regulation.

"However, I am sure that the country does not want any such thing. Certainly the carriers do not, and least of all the water carriers. If you will read your history, you will find that federal regulation of the railroads was precipitated much more by the abuses of competition than by the abuses of monopoly, although both entered in. Owing to the rapid growth of other forms of transportation and our failure to cover the entire field with regulation, we now have a situation very like that which caused railroad regulation. What the country needs, as I have already indicated, is the best and cheapest combined system of transportation consistent with fair treatment of labor and with earnings which will support adequate credit and the ability to expand as need develops and take advantage of all improvements in the art of transportation. Unregulated competition will destroy instead of provide such a system. If experience teaches anything, it teaches that, and there is no escape from the consequent conclusion that the whole system must be brought under centralized control.

"This control must concern itself with planning and prevention as well as with the cure of evils after they arise. It must deal with the future provision of new facilities, with the proper co-ordination of those which exist, and with the development of sound general policies affecting both service and rates. It must prevent unjustifiable duplication and waste; promote the use of each agency of transportation, in cooperation with the others, primarily in the service to which it is economically best adapted; check the forms of endless chain rate-cutting or service promotion which have come to be known as destructive competition; and protect the public against unreasonable charges and unfair discrimination.

"There has been much talk, more or less demagogic,

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PHILADELPHIA Station, Cleveland Terminal, New York Central Viaduct, Rock Island Railroad Bridge—the number and variety of large railway undertakings for which American Bridge Company has fabricated or fabricated and erected the structural steel are more than could be mentioned or suggested here. American Bridge Company is proud to be assigned a part in the splendid demonstration of courage and foresight that is being made by American railways, in their adjustment to transportation requirements of a new age.

AMERICAN BRIDGE COMPANY

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

General Office: Frick Building, Pittsburgh, Pennsylvania

Contracting Offices: Baltimore, Boston, Chicago, Cincinnati, Cleveland, Denver, Detroit, Duluth, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City.

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco *Export Distributors:* United States Steel Products Company, New York

that the whole purpose of regulating water and motor carriers is to elevate their rates for the protection of the railroads. So far as the water carriers are concerned, my observation is that the railroads are more anxious to have their own hands freed, from fourth-section fetters and the like, than they are to have their competitors regulated. In this I think that they are wrong. However, there is no purpose to raise any water rates above a level which can be economically justified from the standpoint of water transportation alone, and if it is desired that such a principle be written into the bill, I have no objection.

"My staff has been working for months on the question of the extent to which various forms of transportation are subsidized, directly or indirectly, by government, including the railroads, the water carriers, the highway vehicles, and the air carriers. There has been an enormous amount of ground to cover, and it has proved to be a work of great difficulty. Every time we seem to be approaching the end, something new turns up. When the report is finally issued, I am afraid that it will take the form of ponderous tomes, although we shall do our best to boil it down. The task reminds me in many respects of cost accounting in a complicated industry, for no precise mathematical answer is possible, and conclusions must rest to a certain extent on assumptions. These are not arbitrary assumptions, for they are based on evidence, but there is always the question as to how far they are reasonable.

"As yet I have not concluded my study of the data on water carriers, and I am therefore not prepared to give you final conclusions. I can tell you, however, how my mind is running on certain principles. When a government expends money on waterways, there may be more than one purpose. Flood control, soil conservation, and the development of water power may be among these purposes as well as navigation. In considering the latter, expenditures for other purposes must, so far as possible, be eliminated. When there has been such segregation of navigation expenditures, however, I see no logical escape from the conclusion that they must be taken into consideration in determining the total cost of navigation on the waterway, along with the operating expenses and overhead charges of the boats. The fact that they are borne by the government does not make them any the less actual costs.

"Assuming that this is the correct conclusion, as I believe it to be, two different questions arise. One has to do with the construction of new waterways or similar projects, and the other has to do with those which already exist. So far as new projects are concerned, the question is whether, considering the total cost involved, which must be borne by some one, the navigation has any important advantages over means of transportation which are already in existence and available. If this question cannot be answered in the affirmative, I am unable to see how the project can be justified. So far as waterways which are now in existence are concerned, the question is whether the portion of the cost which is being borne by the general public through the government ought to be and can be shifted, in whole or in part, to the shoulders of those who use and gain direct advantage from the waterway, in accordance with the principle which is now followed to a considerable degree in the case of the Panama canal.

"To my mind that principle is inherently sound, and the question resolves itself chiefly into one of practicability. The waterways are there and it may well be that a complete shift in this burden would dry up their use. No similar burden is always imposed upon the railroads, because many of them cannot and do not pay a full return upon the investment, although it is true that in the long run there must normally be such a return if the railroads are to be conducted by private enterprise. Furthermore, the railroads are themselves extensive users of navigation improvements, and there are some subsidy skeletons in their own closet. The situation may be different, however, as to that part of the expenditure which is for maintenance, for that would be saved if the waterway were not used."

Freight Car Loading

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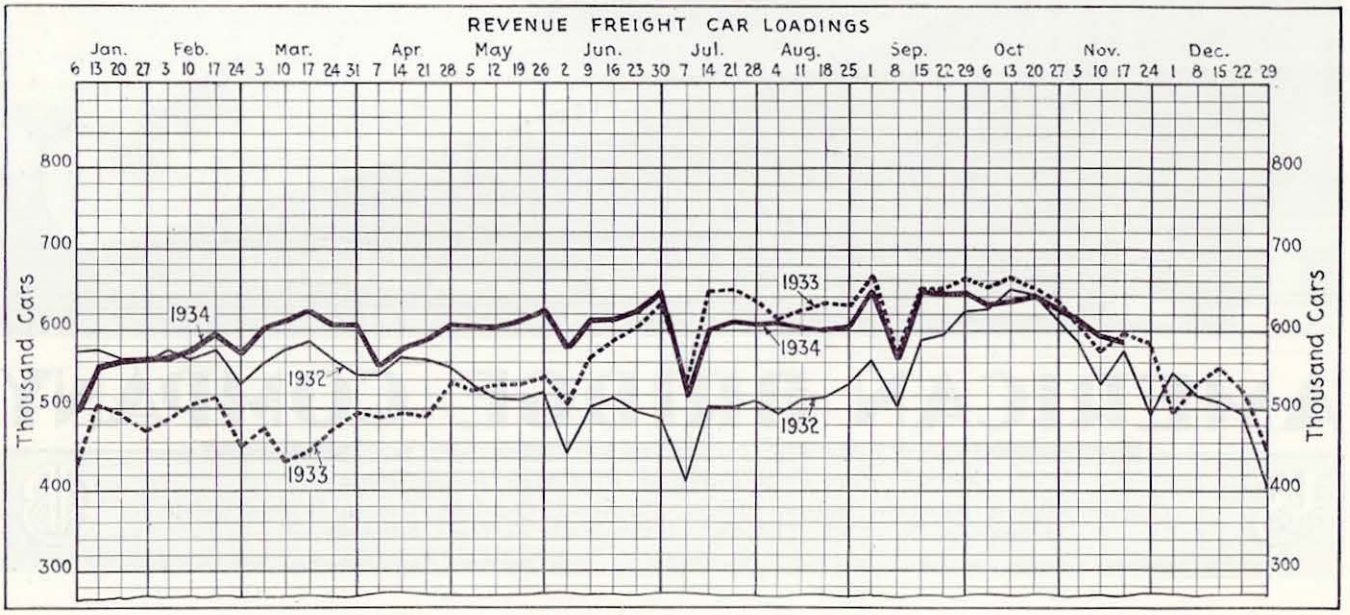
REVENUE freight car loading in the week ended November 17 totaled 584,525 cars, a decrease of 10,407 cars as compared with the week before and of 18,183 cars as compared with the corresponding week of last year, but an increase of 11,902 cars as compared with 1932. Loading of miscellaneous freight and live stock showed increases as compared with last year and



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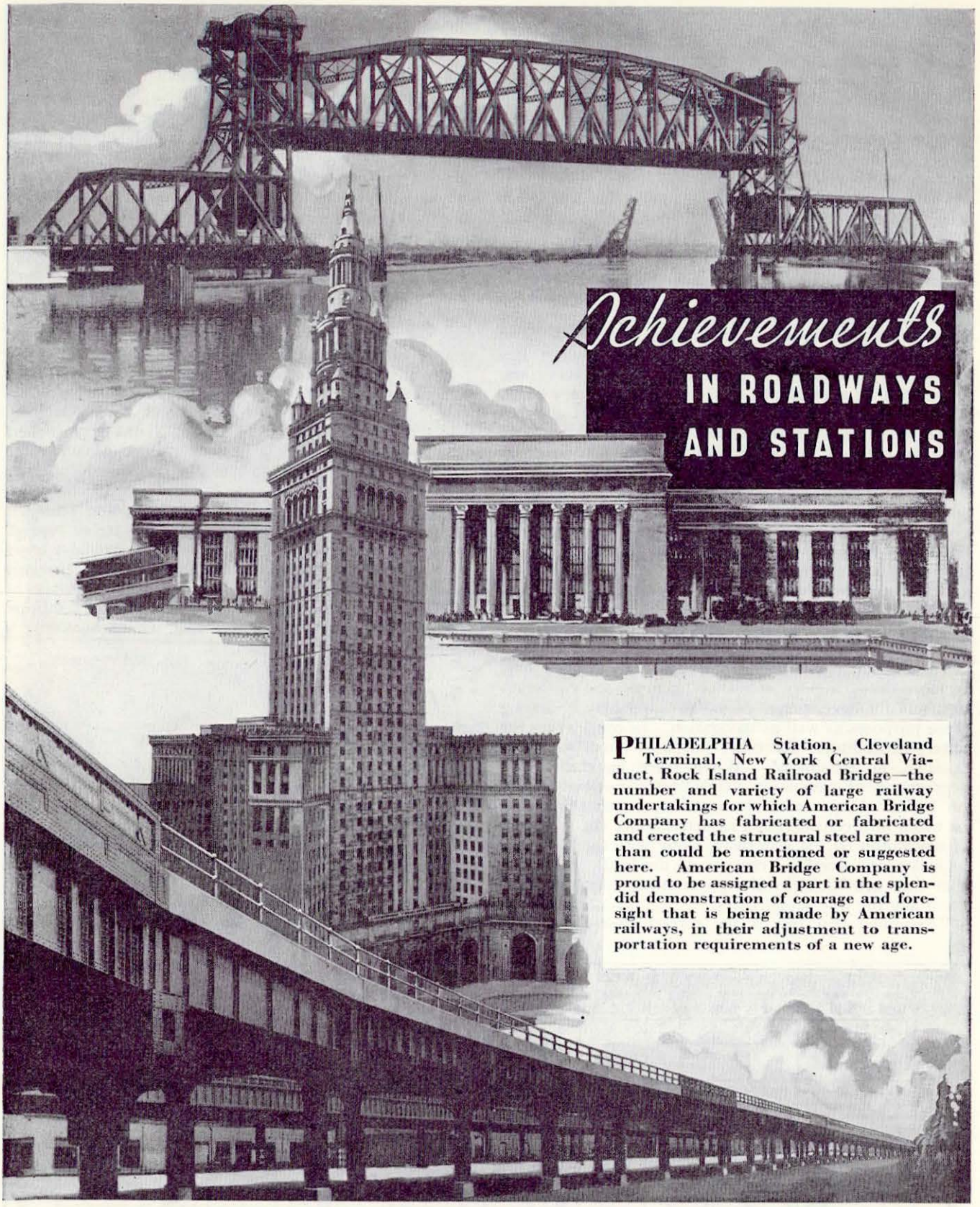

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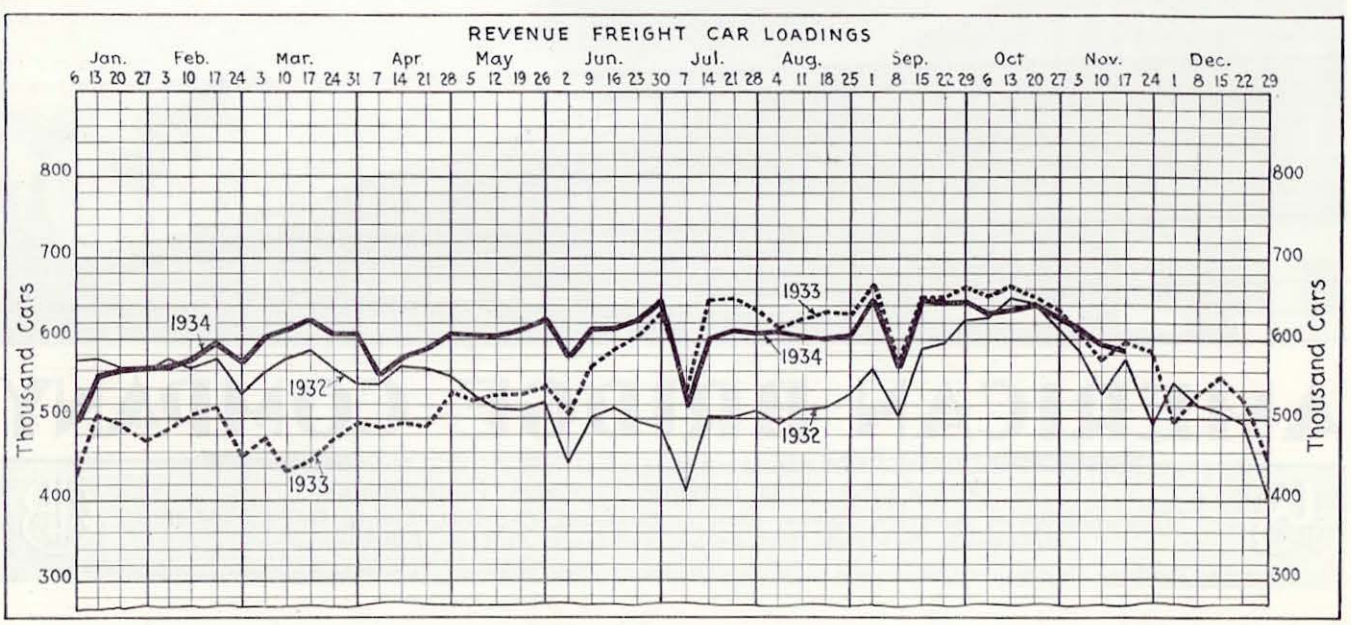

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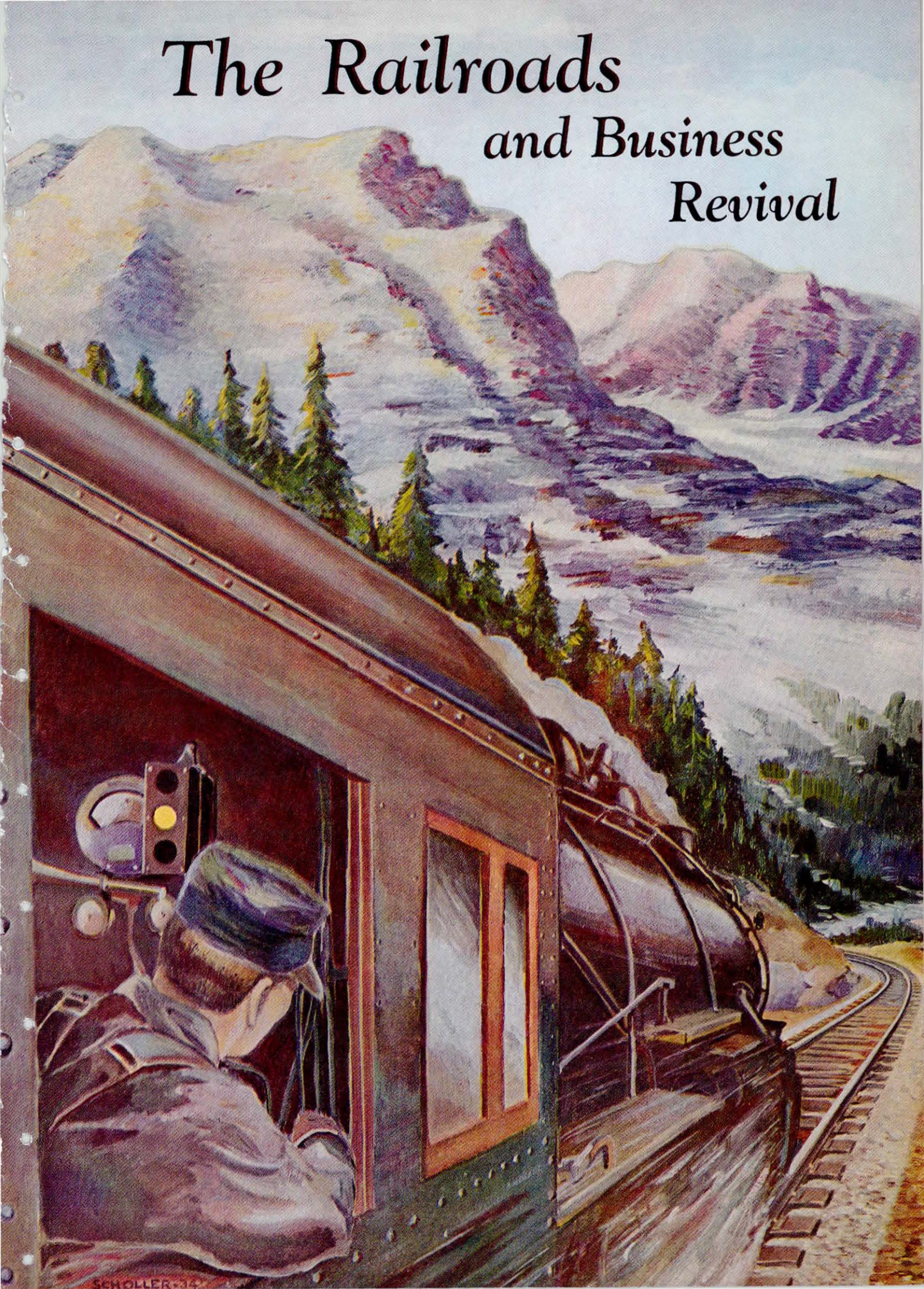
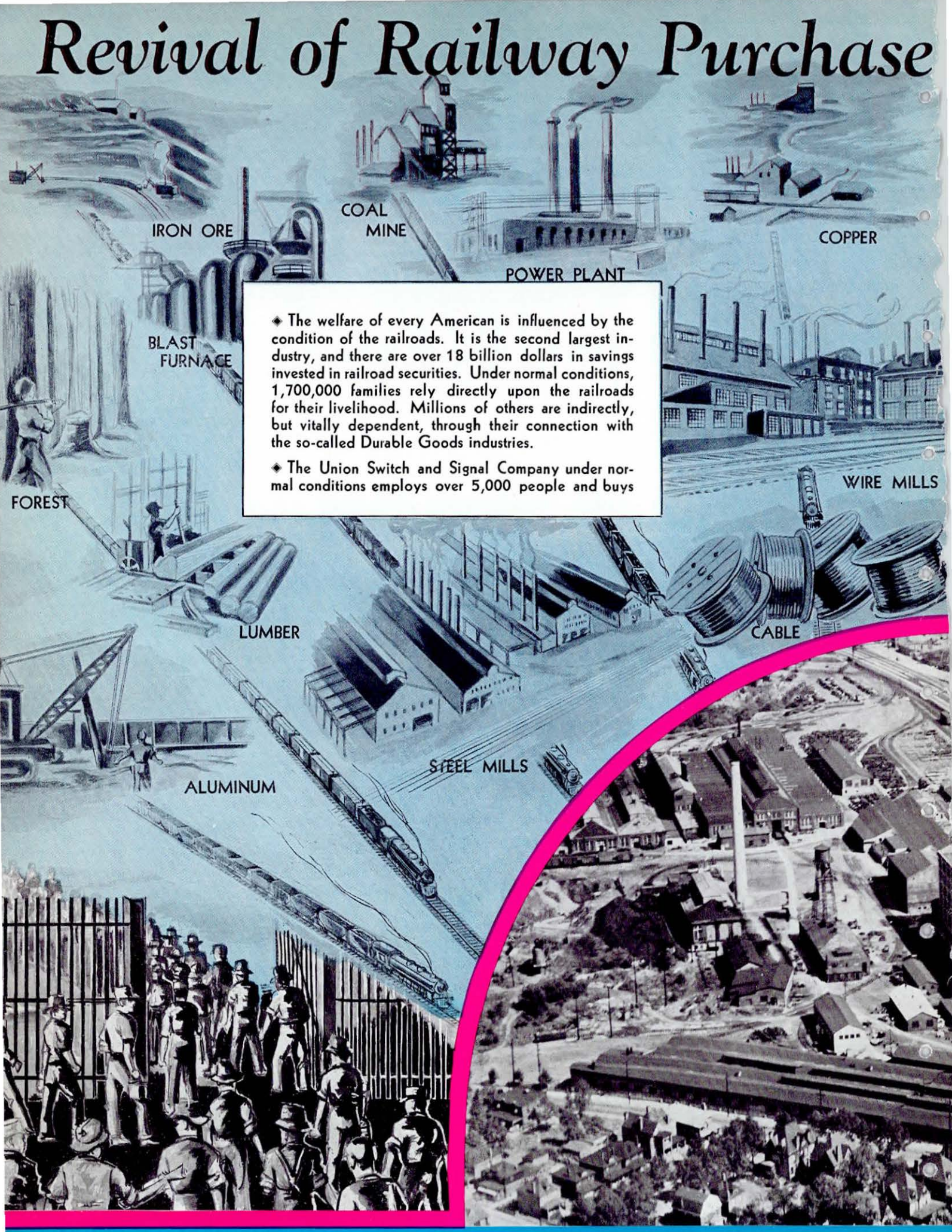
The Railroads and Business Revival



Revival of Railway Purchase



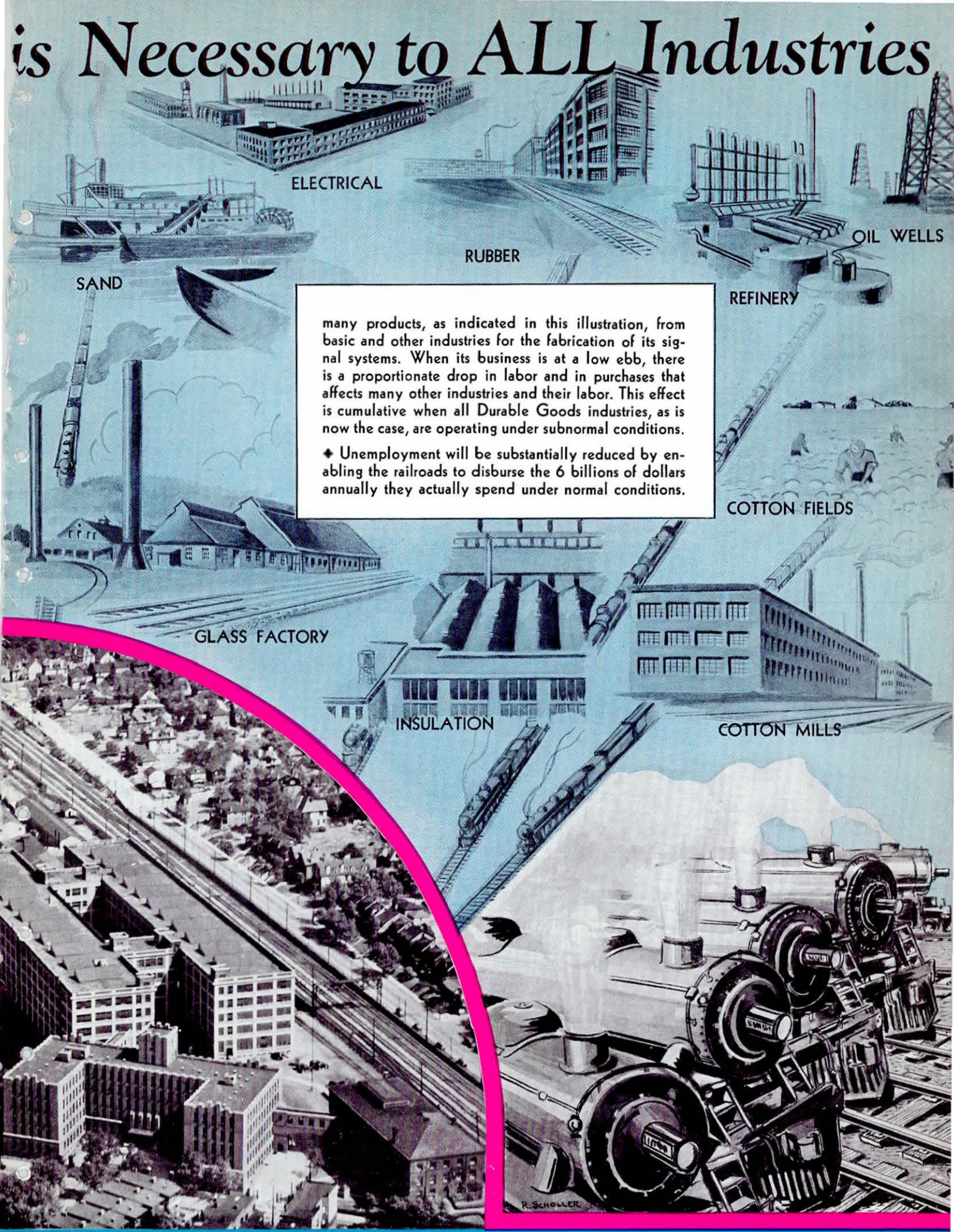
◆ The welfare of every American is influenced by the condition of the railroads. It is the second largest industry, and there are over 18 billion dollars in savings invested in railroad securities. Under normal conditions, 1,700,000 families rely directly upon the railroads for their livelihood. Millions of others are indirectly, but vitally dependent, through their connection with the so-called Durable Goods industries.

◆ The Union Switch and Signal Company under normal conditions employs over 5,000 people and buys

60 ACRES OF GROUND

Over 1,000,000 Sq. Ft. (23 Acres) Floor Space

is Necessary to ALL Industries



many products, as indicated in this illustration, from basic and other industries for the fabrication of its signal systems. When its business is at a low ebb, there is a proportionate drop in labor and in purchases that affects many other industries and their labor. This effect is cumulative when all Durable Goods industries, as is now the case, are operating under subnormal conditions.

◆ Unemployment will be substantially reduced by enabling the railroads to disburse the 6 billions of dollars annually they actually spend under normal conditions.

1881 **Union Switch & Signal Co.** 1934

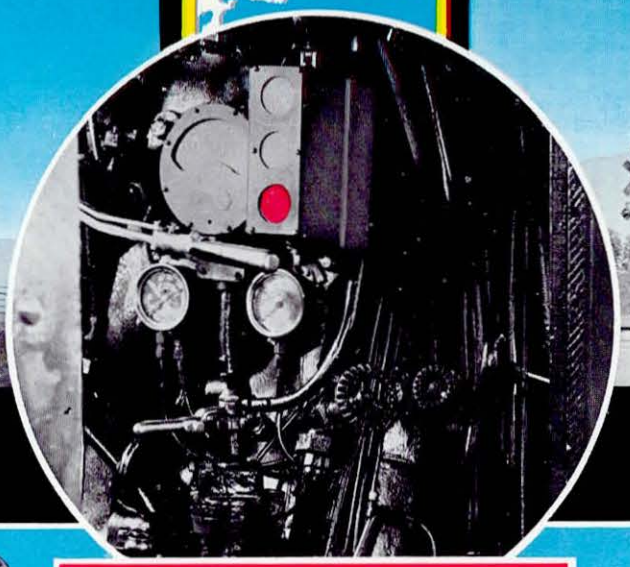
SWISSVALE, PA.

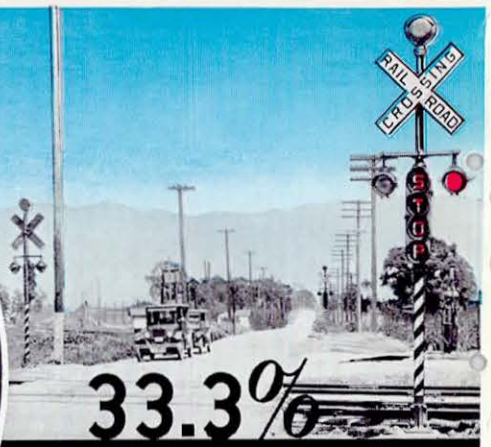
NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

· Signal Systems Promote Economies with Safety ·

45.5%

Because of installation of "Union" Automatic Block Signals, a central road increased freight train speed 28 per cent and saved 45.5 per cent annually on the investment.

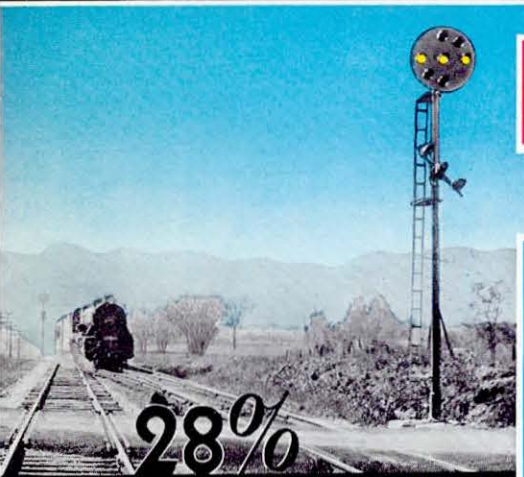




33.3%

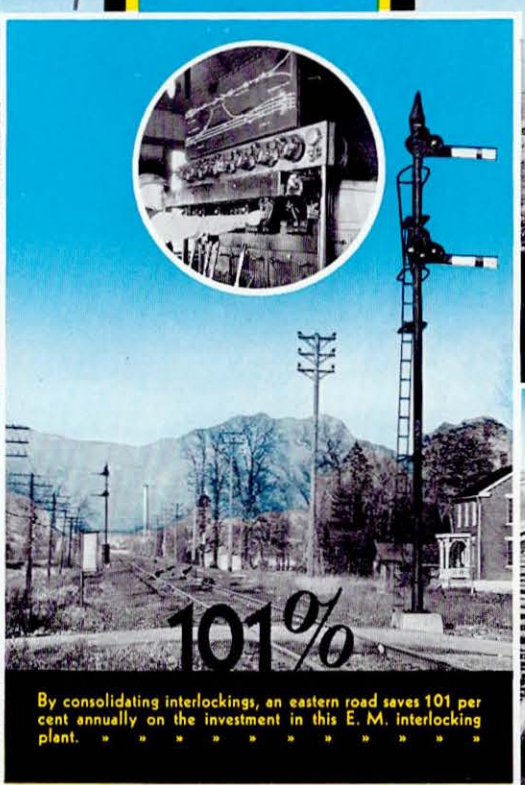
A Terminal railroad in the central states saved 33.3 per cent annually on the investment in "Union" Flashing Light Highway Crossing Signals. » » » » »

Freight train running time between certain points was reduced between 30 min. to 1 hr. 30 min., through installation of the "Union" Coded Continuous Cab Signal Systems on a western road. » » » » » » » » » » »



28%

Through installation of "Union" Centralized Traffic Control on an eastern road, 28 per cent on the investment is saved annually, speed increased 87 per cent, gross ton miles per train hour increased 89 per cent, and construction of second track postponed. » » » » » » » » » »

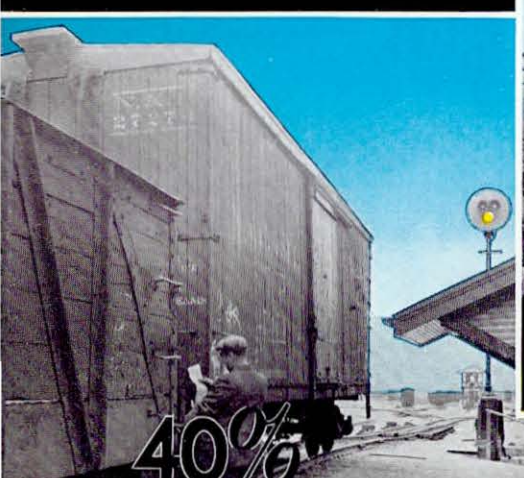


101%

By consolidating interlockings, an eastern road saves 101 per cent annually on the investment in this E. M. interlocking plant. » » » » » » » » » » »

173%

As a result of this installation of "Union" Automatic Interlocking at this crossing, a western road saves 173 per cent annually on the investment. » » » » » »



40%

This "Union" Car Retarder installation saved an average of 54 minutes per car classified and 25 cents per car in classification costs. Annual saving approximately 40 per cent on the investment. » » » » » » »

1881 1934

62.1%

Through installation of remote control, 62.1 per cent annually was saved in the operation of this switch. » » » » » » » » » »

UNION SWITCH & SIGNAL CO. SWISSVALE, PENNSYLVANIA

NEW YORK » « MONTREAL » « CHICAGO » « ST. LOUIS » « SAN FRANCISCO

grain and grain products, live stock, and forest products showed gains over the preceding week. The summary, as compiled by the Association of American Railroads, follows:

Revenue Freight Car Loadings

Week Ended Saturday, November 17, 1934

Districts	1934	1933	1932
Eastern	125,111	132,596	127,152
Allegheny	108,160	112,476	104,990
Pocahontas	42,162	41,706	43,980
Southern	89,759	88,094	86,887
Northwestern	72,797	71,611	66,513
Central Western	93,731	103,358	91,732
Southwestern	52,805	52,867	51,369
Total Western Districts	219,333	227,836	209,614
Total All Roads	584,525	602,708	572,623
Commodities:			
Grain and Grain Products	28,034	32,579	29,596
Live Stock	23,253	22,265	20,938
Coal	125,396	136,903	137,908
Coke	5,508	7,432	4,969
Forest Products	21,611	24,228	16,076
Ore	4,052	4,927	2,991
Merchandise L.C.L.	157,481	165,545	170,252
Miscellaneous	219,190	208,829	189,893
November 17	584,525	602,708	572,623
November 10	594,932	583,073	536,687
November 3	612,457	614,136	587,302

	1934	1933	1932
October 27	624,252	642,423	617,284
October 20	640,280	657,005	641,985
Cumulative Total, 46 Weeks	27,632,202	26,047,078	25,203,352

The freight car surplus for the last half of October averaged 327,569 cars, an increase of 7,869 cars as compared with the first half of the month. The total included 207,289 box cars, 85,259 coal cars, 14,569 stock cars, and 8,483 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended November 17 totaled 50,264 cars as against 51,228 cars for the previous week and 47,420 cars a year ago, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
November 17, 1934	50,264	19,359
November 10, 1934	51,228	19,817
November 3, 1934	51,967	19,502
November 18, 1933	47,420	18,706
Cumulative Totals for Canada:		
November 17, 1934	2,069,440	984,679
November 18, 1933	1,801,678	847,061
November 19, 1932	1,958,752	870,873

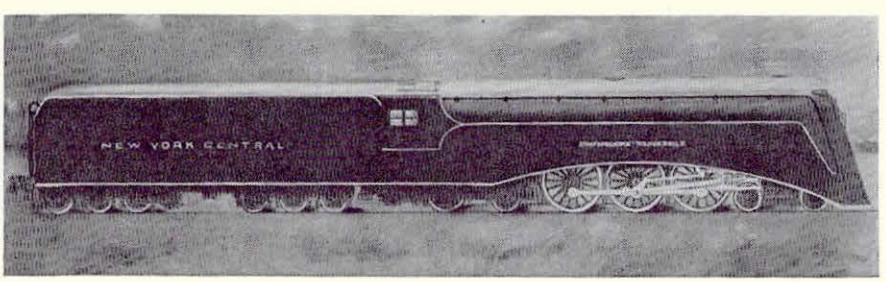
N. Y. C. Steam Locomotive of Streamline Design

Pioneer Creation Which Is Nearing Completion Will Be Tested Early This Month

A streamlined high-powered steam locomotive has been practically completed by the New York Central and will be put through a series of tests during the early part of this month, F. E. Williamson, president of that road, announced on November 24. At first numerous trials over relatively short stretches of track are planned, with later an exhibition tour and an experimental run, for the purpose of observation. The locomotive has been named the Commodore Vanderbilt, after the founder of the New York Central Lines.

This pioneer creation in steam motive power is the New York Central's newest model of the Hudson type passenger locomotive. Both locomotive and tender have been streamlined in accordance with the latest researches in aero-dynamic science, except that to permit quick access to the driving mechanism for oiling and other purposes, the driving and trailing wheels have been left partly uncovered. Otherwise, practically the entire locomotive is enclosed within a graceful metal covering which is finished in gun metal shade of lacquer with stripings of white. Obstructions that might offer air resistance, such as the bell, whistle, smoke stack and other apparatus are beneath or level with the hood, thus enabling the air to flow smoothly over and around the locomotive and tender.

It is believed that the streamlining of this Hudson, whenever the locomotive is operated at speeds of 70 to 90 m.p.h. or more, will effect a decrease in head air resistance of 35 to 36 per cent, which is expected to be reflected in a saving in fuel. Several other beneficial features are also claimed for the new design. It provides additional insulation for the cylinders, auxiliary apparatus and pipes, thus helping to protect them from freezing temperatures. The 79-in. drivers are also equipped with roller bearings.



The New York Central's Streamline Locomotive

"The New York Central will present this streamlined engine," Mr. Williamson announced, "as evidence of its belief that, despite recent developments in the use of other fuels, the day of the steam locomotive is far from past. It believes that, if present expectations are realized, steam can continue to offer the maximum of travel safety and comfort and speeds as high as most persons would care to travel. At the same time, the Central is watching with interest the operation of the existing new models of streamlined trains operated by other than steam power."

Court Dismisses Complaint of Louisville & Nashville

Refuses to grant injunctive relief from Co-ordinator's order in C. & E. I. rerouting

The complaint filed by the Louisville & Nashville and the New York Central, seeking injunctive relief from Co-ordinator Eastman's order forbidding the rerouting of Chicago & Eastern Illinois' Dixie trains over the Cleveland, Cincinnati, Chicago & St. Louis and the New York Central between Evansville, Ind., and Chicago, was dismissed on November 23 by a three-judge district court at Chicago. In its conclusions of law, the court held that (1) the controversy had not reached the judicial stage and the plaintiffs are not entitled to injunctive relief from a court of equity until they have applied to the Interstate Commerce Commission for a review of the order, (2) the order intended by the Co-ordinator was one within the scope of his authority to enter, (3) that it was necessary for the plaintiffs to apply to the Interstate Commerce Commission for a review of the order before applying to the court of injunctive relief and (4) that the order intended by the Co-ordinator was one entered by an administrative office respecting an administrative matter.

The judges concluded that the plaintiffs are not excused from applying to the Interstate Commerce Commission because that body may deny their application and refuse to hear them on the merits of their petition. The right of the plaintiffs to apply to the commission and the latter's obligation to take action on the application make it necessary for the plaintiffs to apply first to the commission before it applies to a court of equity for injunctive relief. The court also ruled that the order involves an administrative matter and that the Co-ordinator is given authority by the Act of Congress to issue the order in question.

In discussing the power of the Co-ordinator to issue the order, the court said that in determining the duties, authority and powers of the Co-ordinator it is satisfied that the act must be read as a whole and not merely looked at by sections. Because of the purpose of the act, the court did not feel justified in holding that the Co-ordinator acted outside the scope of the authority given him by the statute. The purpose of the act, according to the court's ruling, "was to administer oxygen to critical patients and to revive those who were suffering from sinking spells." Its tone forbids the conclusion that the strong carriers might exterminate the weaker competitor. It is also the conclusion of the court that the authority of the Co-ordinator is not limited to those matters wherein his judgment coincides with that of the regional committees. Because neither the Co-ordinator nor the committee held any hearings, the court concluded that the rules which govern the trial of cases were, therefore, not applicable.

Co-ordinator Eastman on November 23 again postponed the effective date of his order of October 25 in which he had prohibited the proposed discontinuance of interchange of through passenger train equipment between the Louisville & Nashville and the Chicago & Eastern Illinois, so that it will become effective 45 days after the date of its publication instead of 20 days.

Ohio Valley Shippers' Board

The Ohio Valley Transportation Advisory Board will hold its fortieth regular meeting at the Dayton-Biltmore Hotel, Dayton, Ohio, on Tuesday, December 11. O. C. Castle will speak on Pooling of Freight Cars.

Grand Trunk Pick-Up Service Permanent

The Grand Trunk Western has established its system-wide free freight pick-up and delivery service on a permanent basis. The service has been available on a temporary basis since September 20, when the former 260-mile limit on free store-door service was abandoned.

Seventeen-Year Record at Port Reading

The Reading Company reports that, on November 15, the car dumper at its New York harbor terminal, at Port Reading, N. J. (four miles north of Perth Amboy) unloaded its millionth car of coal. This is the record from July, 1917, when the car dumper was first put in use, and represents a total of 47,549,907 tons of coal.

Panama Limited Reinstated

The Panama Limited of the Illinois Central, which was discontinued in May, 1932, will be returned to service on December 2 on a 20-hr. schedule between Chicago and New Orleans, La. The train will leave each city at 1 p.m. and will arrive at destination nine o'clock the next morning. The equipment will consist of club, lounge-buffet, dining, observation and sleeping cars, a feature of which latter will be the double bedroom. One lounge-buffet car has been done in the French motif and the other exemplifies the Spanish motif in tribute to the Spanish-speaking Latin American countries which are served through the port of New Orleans. The train will be air-conditioned throughout.

R.F.C. Not To Press Roads For Repayment

Jesse H. Jones, chairman of the Reconstruction Finance Corporation, has stated that there is no disposition on the part of the corporation to press the railroads for repayment of maturing loans but is willing to extend them, as has already been done in several cases. He said the corporation has good collateral for most of the loans made and sees no reason for pushing the roads to pay them off.

Pennsylvania-Reading Seashore Lines Establish New Bus Route

The Pennsylvania-Reading Seashore Lines have been granted permission by the Board of Public Utility Commissioners of New Jersey to substitute buses for train services between Fifty-first street, Ocean City and Sea Isle City, a distance of approximately six miles. Under the new set-up two eastbound and three westbound through trains between Philadelphia and Sea Isle City will continue to be operated on Sundays.

Central Western Shippers' Board

The thirty-first regular meeting of the Central Western Shippers' Advisory Board will be held at Omaha, Neb., on December 4. The program provides for an address by O. C. Castle, director of car pooling, Federal Co-ordinator of Transportation, on Car Pooling; and one by C. N. Wright, vice-president of the Nebraska unit of the board, on Business—Its Aspects. At the banquet session, Henry A. Palmer, editor and manager of the Traffic World, will speak on Government Ownership of Railroads.

Increased Divisions Prescribed For Short Lines

The Interstate Commerce Commission has issued a report upon a general investigation of divisions of class rates in official territory to and from points on the Belfast & Moosehead Lake, the Chesapeake Western, the Virginia Blue Ridge, and the Chesapeake Beach, finding the present divisions accorded the short lines to be unjust, unreasonable, and inequitable, and prescribing increases. The commission also prescribed an increase in the divisions on certain commodity rates for the Chesapeake Western.

A.A.R. Appoints Committees on Grade Crossing Elimination

The Association of American Railroads has appointed a policy committee to deal with the various government departments and agencies interested in appropriations for the elimination of railroad-highway grade crossings, consisting of J. J. Pelley, president of the association; R. V. Fletcher, vice-president and general counsel; J. R. Downes, vice-president of the operations and maintenance department; M. J. Gormley, executive assistant to the president, and R. E. Dougherty, vice-president of the New York Central. It has also appointed an executive committee of railway engineers, with R. H. Ford, assistant chief engineer of the Chicago, Rock Island & Pacific, as chairman, which has also been in contact with the government officials on proposals for expediting and enlarging the program of grade separation and protection under federal grants and which has furnished information as to various projects to the Bureau of Public Roads.

W. H. Carrier Honored for Air-Conditioning Research

W. H. Carrier, of Newark, N. J., has been awarded the medal of the American Society of Mechanical Engineers for 1934. The award was made for research in air-conditioning. Mr. Carrier is chairman of the board of the Carrier Engineering Corporation, the Carrier Corporation and the Carrier Manufacturing Corporation, manufacturers of air-conditioning equipment, and is also past president of the American Society of Refrigerating Engineers and of the American Society of Heating and Ventilating Engineers.

October Locomotive Shipments

October shipments of railroad locomotives from the country's principal manufacturing plants totaled 12, as compared with 13 in September and none in October, 1933, according to reports received by the Bureau of the Census, U. S. Department of Commerce. Unfilled orders at the end of October totaled 118 locomotives, including 61 steam and 57 electrics, as compared with unfilled orders for 83, including 5 steam and 78 electrics at the end of October, 1933. These figures do not include data on locomotives built by railroads in their own shops.

Railroad Line Abandonment Studies

By arrangement with Interstate Commerce Commission and the American Railway Association, the Bureau of Public Roads has undertaken during the past year to make studies of branch lines and sections of railroad proposed for abandonment, with a view to ascertaining the effect of such action on highway traffic in the immediate vicinity. Cases studied included both those under formal application to the Interstate Commerce Commission and those informally proposed by the railroads through the American Railway Association. This work was done for the purpose of determining the selection of secondary or other roads which should be built to serve communities in the regions of the abandonments. A detailed inspection was made of the territory served by the existing railroad, with special reference to the amount of traffic which would result if freight transported by rail should be carried on the roads, and to the condition of the existing roads leading from each population center or railroad station to the nearest available station after abandonment. The potential highway traffic was estimated as an annual daily average in truck loads based on a 5-year period, and for

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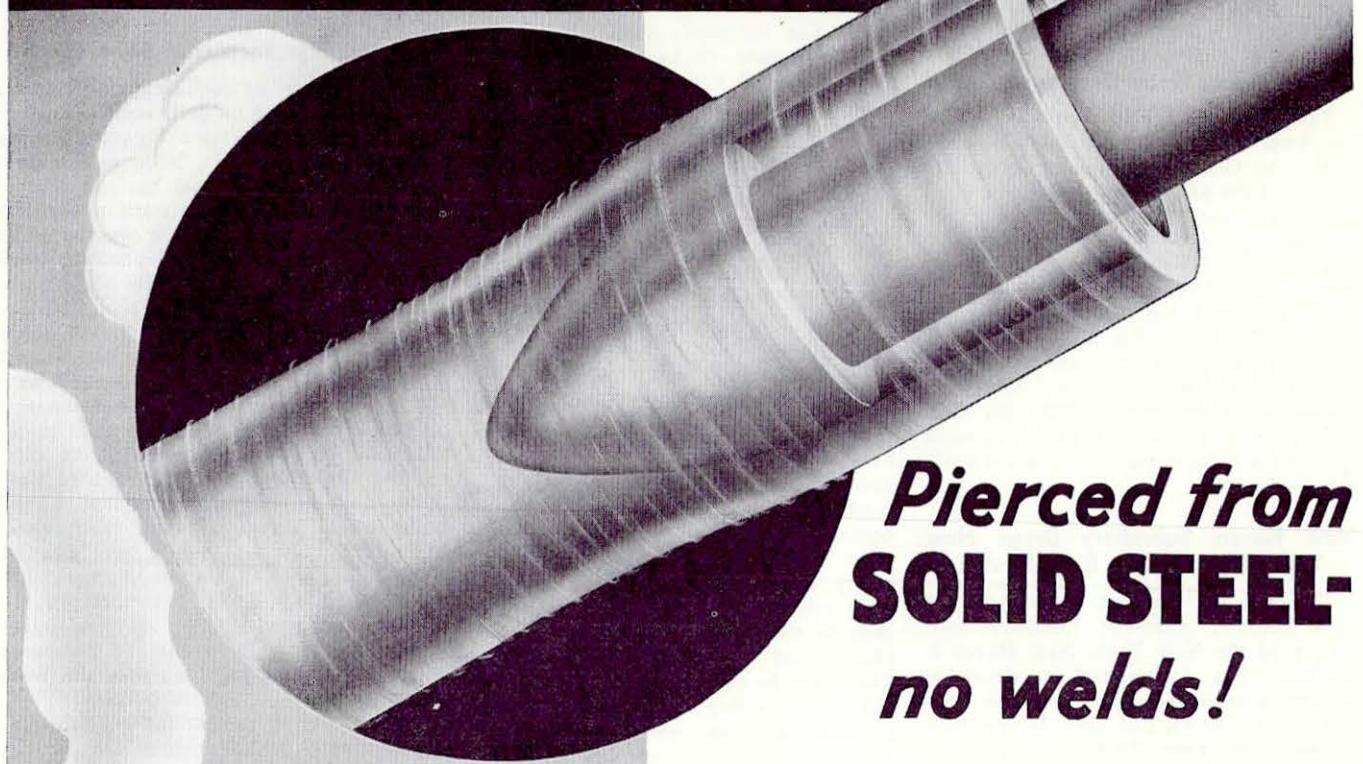
RAILWAY PIPING AT ITS BEST!



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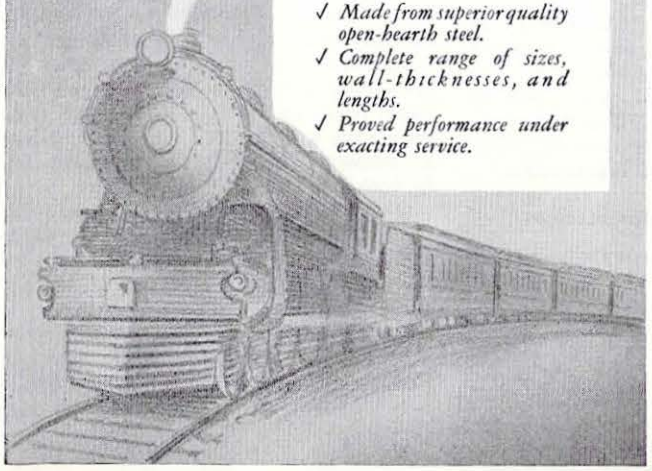

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Under the highest pressures and temperatures of new locomotive power and for the hardest conditions that piping in cars must meet, NATIONAL Seamless Pipe will give the necessary security, and, by reducing future repairs and replacements, will cut maintenance costs to a minimum. Our field engineers and railway boiler tube and pipe experts will be glad to discuss your piping problems. For present safety and future economy, specify NATIONAL SEAMLESS—

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maximum average truck loads per day for the peak month.

Distances, types of road, condition of bridges, and other relevant features were reported, in order that a definite determination might be made as to the amount and kind of highway construction or reconstruction which would be necessary to provide equivalent service to that furnished by the rail line proposed for abandonment.

During the fiscal year 72 cases were studied, involving 1,893 miles of railroad proposed for abandonment, and 3,712 miles of highways.

A.R.E.A. Tie Plate Designs Rejected

The letter ballot mailed to members of the American Railway Engineering Association on October 15 resulted in the rejection of the proposal of the Track committee for the adoption as standard of four designs of tie plates. These designs, as reported in the *Railway* Age of November 3, page 558, provided two sizes of plates for the 112-lb. RE rail section and two for the 131-lb. RE rail. The larger design for each weight of rail provided a flat bottom and holes for screw hold-down spikes, while the smaller plate for each weight of rail provided two transverse ribs on the bottom, and holes for cut hold-down spikes.

New Haven Subsidiary Drops New York-New London Boat Service

The New London Line, operated by the New England Steamship Company, subsidiary of the New York, New Haven & Hartford, has discontinued its steamship services between New York and New London, Conn., which had been in operation for 94 years. Loss of traffic was given as the reason for the discontinuance, which became effective on November 15.

The New London Line was established in 1840 and in recent years had operated one steamship—the New Hampshire—which left New York daily, except Sundays, at noon and arrived in New London at 7 p. m., returning on an overnight run leaving New London at 11 p. m.

Mechanical Division Letter Ballot Results

The recommendations of various committees presented at the meeting of the Association of American Railroads, Mechanical Division, held in Chicago, June 27, 1934, were submitted to letter ballot, the detailed results of which have just been made available in Circular DV-821. The committee recommendations, totaling 93 in number, were all acted upon favorably. Proposed amendments to the Standard and Recommended Practice of the Division were approved effective March 1, 1935, and amendments to the Interchange Rules and Loading Rules of the Division were approved effective January 1, 1935.

Club Meetings

The New England Railroad Club will hold its next meeting at Copley Plaza Hotel, Boston, on Tuesday evening, December 11. The speaker will be W. G. Knight, mechanical superintendent of the Bangor & Aroostook.

The Central Railway Club will hold its next regular meeting on Wednesday evening, December 12, at the Statler Hotel, Buffalo. The subject of discussion will be Railroad Terminal Operation. The speakers will be C. R. Wiseman, N. Y. C.; W. H. Sitterly, P. R. R.; P. C. Berkwater, Erie; M. A. Quinn, D. L. & W.; and W. J. Sheridan, B. & O. There will be community singing and also the election of officers.

The Car Foremen's Association of Chicago will hold its next meeting at the La Salle Hotel, Chicago, on Monday evening, December 10. J. A. Deppe, C. M. St. P. & P. will present a paper on "The Preparation of Freight Cars in Terminal Yards for Road Haul."

The Northwest Car Men's Association (St. Paul) will hold its next meeting at the Y. M. C. A. Gymnasium, Minnesota Transfer on Monday evening, December 3. R. E. Peterson (G. N.) will present a paper on air conditioning.

New Haven Establishes Statistics and Research Department

The New York, New Haven & Hartford has established a department of statistics and research, according to an announcement made by Howard S. Palmer, president of the company. This action is being taken "because of the rapid changes in industry and transportation, requiring constant adjustment and experimentation to improve the service offered by the New Haven and its subsidiary companies." There will be three bureaus in the organization, one dealing with statistics, one with research and one with analysis. The principal duties of the new department will be to initiate studies determining the needs of shippers and passengers and methods of improving service and efficiency. Also, the many recommendations and suggestions being received from the Federal Co-ordinator and those expected from the recently organized Association of American Railroads, will be analyzed by the new department in relation to their possible application to New Haven conditions.

President Palmer announced that D. M. Neiswanger, assistant to general manager, who has been in the service of the New Haven for the past 20 years, will be manager of the new department, and the remainder of its personnel will be drawn largely from the present organization.

Southern's Florida Services

The Southern will inaugurate on December 12 the twenty-second consecutive year of its winter services from the North and West to Florida, which are operated in conjunction with the New York Central and St. Louis-San Francisco. Commencing on that date the Royal Palm will carry through sleeping cars from Chicago and Cincinnati to Jacksonville and from Detroit and Cleveland to Miami. In addition the Atlanta-Brunswick car, which is being operated at present, will be continued for the accommodation of winter travelers to the resorts around Brunswick, Ga. The Ponce de Leon, another daily Florida train, will carry through sleeping cars from Chicago, Detroit and Cleveland to St. Petersburg and from Detroit, Cleveland and Cincinnati to Jacksonville.

From the West, the Kansas City-Florida Special will carry through sleeping cars from Kansas City, Memphis, and Birmingham to Jacksonville; also, through sleeping car service will be provided from Kansas City to Miami.

The Southern anticipates that, because of improved business conditions, the 1934-35 Florida travel will be much heavier than it has been in recent years.

Zephyr Increases Business

The "Zephyr" of the Chicago, Burlington & Quincy, during its first week of operation in revenue service between Kansas City, Mo., and Lincoln, Neb., was successful in creating additional business. Omitting the patronage of the train on the first day when its inauguration was attended with special ceremonies, 35 per cent more passengers rode on the train during the week of November 12 to 18 than had ridden the steam-drawn train in the preceding week. The average patronage between all points was 91 persons, as compared with 67 on the former train. A questionnaire given to passengers returned figures showing that 18 per cent traveled from curiosity; 67 per cent would have used Burlington steam train service anyhow, 10 per cent would have used some other steam train and 5 per cent would have gone by private automobile, bus or airplane. The distance traveled per passenger on the Zephyr increased sharply, 44 persons being carried per train-mile as compared with 21 persons per train-mile the week before.

On two trips, southbound on Saturday, November 17, and northbound on Sunday, November 18, the Zephyr's 72-passenger seating capacity proved inadequate. There were 90 passengers, including 41 curiosity riders, on the Sunday run out of Kansas City.

The result of the week's operations were as follows: The schedule was maintained each day, except for the 15-min. delay westbound at Greenwood, Neb., on November 13, when the Zephyr was struck by a farmer's truck. Eliminating the initial trip on November 11 as being abnormal, the business of the train for the week of November 12 to 18, as contrasted with the steam trains on the corresponding schedule during the week of November 4 to 10, was as follows: Between Lincoln and Omaha in both directions, an increase of 96 per cent; southbound, leaving Omaha and Council Bluffs, passengers for all points averaged 42 per trip as compared with 18 the previous week, an increase of 133 per cent; southbound into Kansas City, passengers from all points averaged 53 per trip as compared with 29 the previous week, an increase of 83 per cent; northbound out of Kansas City, passengers for all points averaged 57 per trip, as compared with 25 the previous week, an increase of 128 per cent; northbound into Council Bluffs and Omaha, passengers from all points averaged 44 per trip, as compared with 17 the previous week, an increase of 160 per cent.

The gross revenue per train-mile has been about $1.65, of which about $1 was

from passengers, compared with passenger revenues of about 50 cents on the steam trains.

Rate Advance Hearings Resumed in Washington

Hearings on the application of the railroads to the Interstate Commerce Commission for a rather general increase in freight rates, Ex Parte No. 115, were resumed at Washington on November 26 before Commissioner Clyde B. Aitchison and the co-operating committee of state railway commissioners, following a series of hearings in the West and Southwest. Most of the first day was taken up with the cross-examination of railroad witnesses who had testified at the opening hearing in Washington in October, Julius H. Parmelee, director of the Bureau of Railway Economics, F. A. Leland, chairman of the Southwestern Freight Bureau, and D. T. Lawrence, chairman of the Traffic Executive Association (Eastern Territory). Dr. Parmelee is to be recalled for further questioning next week when he will submit some later statistics covering railway operations for September and October.

During the cross-examination another hearing was held before Examiner James P. McGrath at which a number of shippers testified who did not wish to remain in Washington awaiting an opportunity to testify at the main hearing, and Commissioner Aitchison admitted to the record a number of affidavits which had been submitted by those who did not wish to appear offering testimony to which no objection was offered by other parties.

The first witness on behalf of protesting shippers at the main hearing was C. C. Sheppard, president of the National Lumber Manufactures' Association, who declared that the present freight rate structure has already retarded the movement of lumber and that an increase would further discourage it. He said the plight of the railroads is due to the "ever-increasing burden of interest charges" and that the lumber industry has been forced to reduce its interest charges. He outlined the efforts of the lumber industry to stimulate building through voluntary price reductions and said that the railroads have more to gain from a resumption of building activity than from a rate increase. Similar testimony accompanied by elaborate exhibits was given by Wilson Compton on behalf of the lumber industry generally; followed by A. G. T. Moore of the Southern Pine Association, H. N. Proebstel, of the West Coast Lumber Manufacturers' Association, and H. A. Gillis of the Western Pine Association.

B. & O. Annual Meeting

The Baltimore & Ohio may report a deficit of about $3,000,000 for the current year, according to the statement of its president, Daniel Willard, at the annual meeting of the stockholders in Baltimore, Md., on November 19. Mr. Willard foresaw the possibility of the deficit, despite increased gross revenues as compared with 1933, because of the fact that depreciation charges in the present year were $1,600,000 greater than in 1933 and the road has in addition been subject to increased material costs of about $4,000,000 and increased labor costs of $1,000,000. For 1933 the Baltimore & Ohio reported a net after all charges of $204,772.

Mr. Willard reviewed briefly developments of the current year, saying that the Baltimore & Ohio expects to receive early next year its two light-weight streamlined trains of six coaches each; it also expects in the near future to receive a Diesel locomotive of 1800 horsepower for use on these trains and to complete the rebuilding of two of its passenger locomotives for the same purpose. Mr. Willard also revealed that the Baltimore & Ohio now has 283 passenger cars equipped with air-conditioning apparatus.

In discussing the operation of the Emergency Railroad Transportation Act the B. & O. President referred to Co-ordinator Eastman's studies of various phases of the railroad problem and expressed the opinion in this connection that many of the estimated savings from recommended changes are too high and consequently unattainable. He added, however, that "nevertheless the railroads should, and I believe they will, earnestly endeavor to make effective all suggested changes in methods which promise to yield economy in operation, without disproportionate sacrifices in service."

The Association of American Railroads, Mr. Willard predicted, will be the means of bringing to the railroads as a whole substantial economies through the elimination of duplicate and unnecessary service and the greater encouragement which it will give to research and invention. In closing, Mr. Willard expressed the fullest confidence that "with legislation such as the President himself, the Federal Co-ordinator and the Interstate Commerce Commission have all recommended from time to time, intended to give to the railroads the equality of opportunity to compete with other transportation agencies to which they are fairly entitled, the railroads will continue to justify their status of private ownership and control."

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 3400, Empire State Building, New York, N. Y. Annual meeting, May 2-4, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

ALLIED RAILWAY SUPPLY ASSOCIATION.—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago, Ill. To meet with Air Brake Association, Car Department Officers' Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers' Association and the Traveling Engineers' Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 816 McCormick Building, Chicago, Ill. Annual meeting, September, 1935, Toronto, Ontario, Canada.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting, June 13-15, 1935, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill. Annual meeting, January 18-19, 1935.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago, Ill. Annual meeting, October 15-17, 1935, Chicago, Ill. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York, N. Y. Annual meeting, January, 1935, New York.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—E. H. Gurton, Mgr., Land Settlement and Development, C. N. R., St. Paul, Minn. Semi-annual meeting, December 6-7, 1934, Hotel Sherman, Chicago, Ill.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the Association of American Railroads, Division IV.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1935, Palmer House Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITOR'S ASSOCIATION.—John Ferrick, Missouri Pacific Lines Magazine, 2108 Missouri Pacific Lines Building, St. Louis, Mo.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C., M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill. Annual meeting, May 6-8, 1935, Hotel Sherman, Chicago, Ill. (Tentative). Exhibit by Tool Foremen Suppliers' Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—29 W. 39th St., New York, N. Y. Annual meeting, December 4-7, 1934, at 29 W. 39th St. Railroad Division. Marion B. Richardson, Ahrens & Richardson, 30 Church St., New York, N. Y. Annual meeting, December 4, 1934.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, January 22-24, 1935, Hotel Pennsylvania, New York, N. Y.

ASSOCIATION OF AMERICAN RAILROADS.—H. J. Forster, Transportation Building, Washington, D. C.

- Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y.
  - Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Annual meeting, June 18-20, 1935, Chicago, Ill.
  - Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
  - Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
  - Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
  - Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting, June 25-27, 1935, Hotel Stevens, Chicago, Ill.
- Division II.—Transportation.—G. W. Covert, 59 E. Van Buren St., Chicago, Ill.
- Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York, N. Y.
- Division IV.—Engineering.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1935, Palmer House, Chicago, Ill.
  - Construction and Maintenance Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1935, Palmer House, Chicago, Ill.
  - Electrical Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill.
  - Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y.
- Division V.—Mechanical.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.
- Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y.
- Division VII.—Freight Claims.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill.
- Division VIII.—Motor Transport.—George M. Campbell, 30 Vesey St., New York, N. Y.
- Car Service Division.—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Chief Clerk and Claim Agent, General Claims Department, Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, May 15-17, 1935, Hotel Biltmore, New York, N. Y.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., 1519 Daily News Building, 400 W. Madison St., Chicago, Ill.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—L. F. Flanagan, Detroit Graphite Company, Room 1158, 20 N. Wacker Drive, Chicago, Ill. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago,

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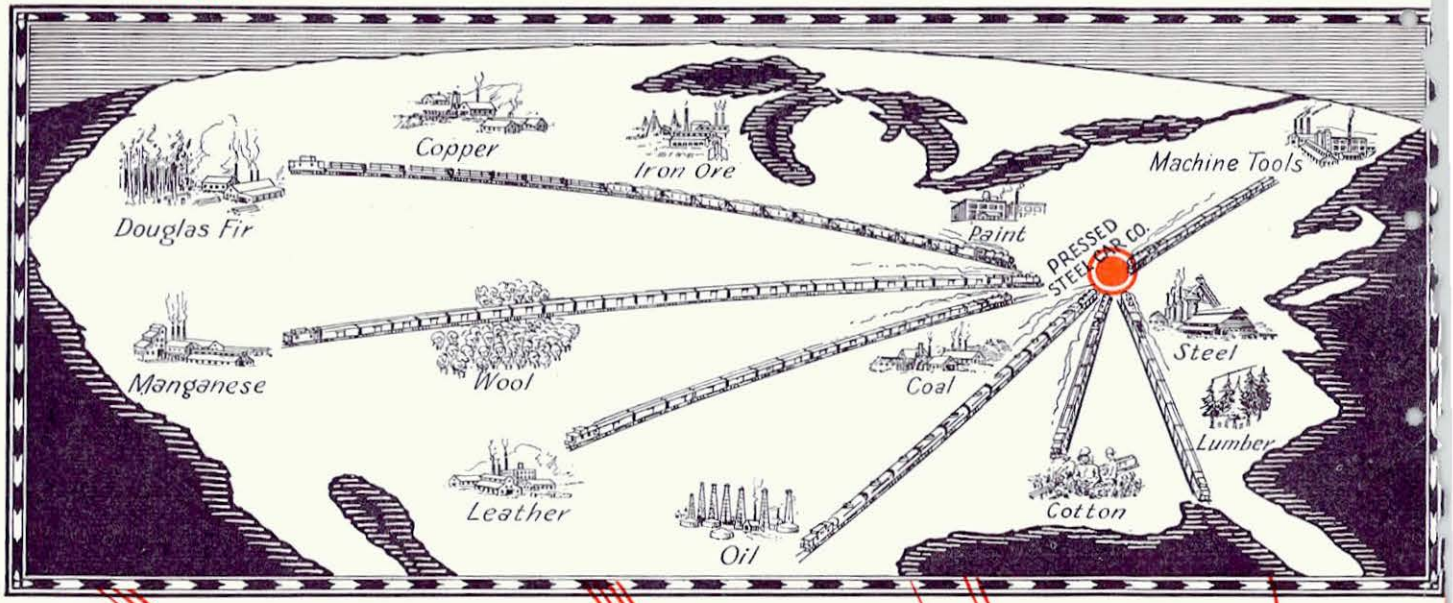
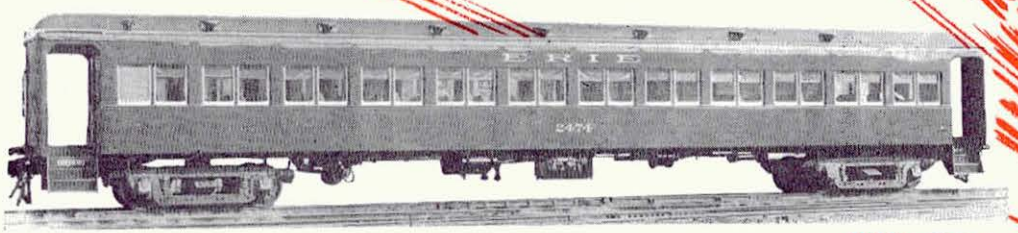


Railways Buy Cars

INSTANTLY there is set in motion productive influences which start raw materials, semi-finished and finished products steaming from all sections of the country.

Iron ore from the Northwest, limestone, coke, coal, manganese are transported to iron and steel producers. That means mines, quarries, coke ovens resume operation, blast furnaces are blown in, power plants are stepped up, heavy machinery starts turning. Lumber is shipped from the South and Pacific coast, copper from the West, electrical and air brake equipment from the East, machine tools from New England and central districts cotton and oils from the South, castings, forgings, springs, rubber, paints, glass, insulation and other essentials are manufactured and transported from and through every section of the country giving employment to hundreds of thousands, and benefitting millions.



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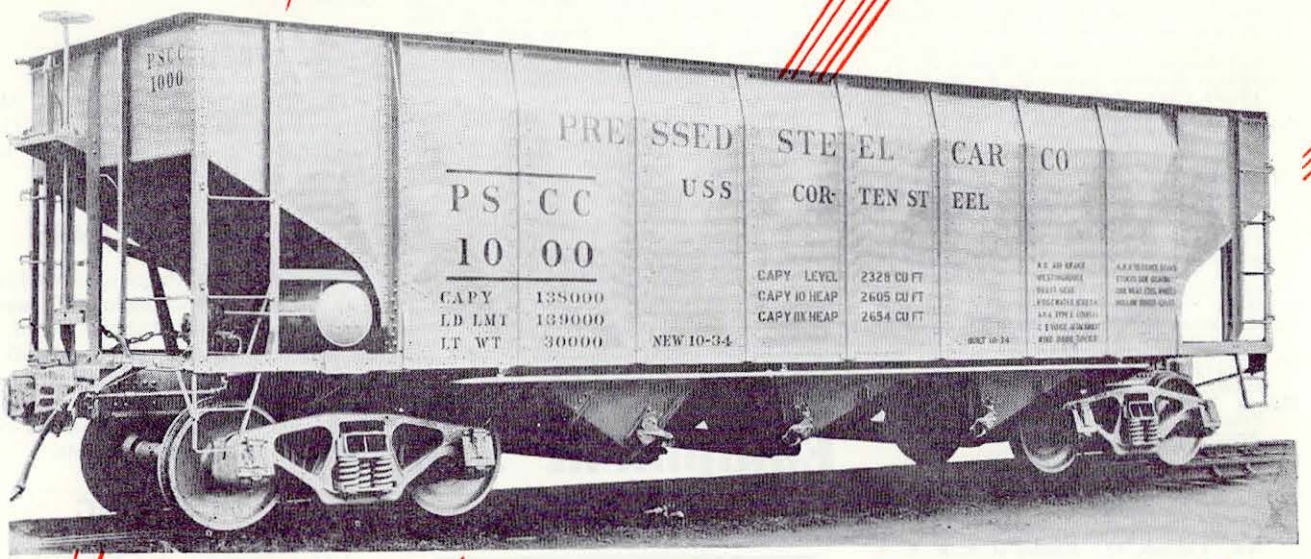
PITTSBURGH

ON BENEFITS *When*



Railways Reduce Costs

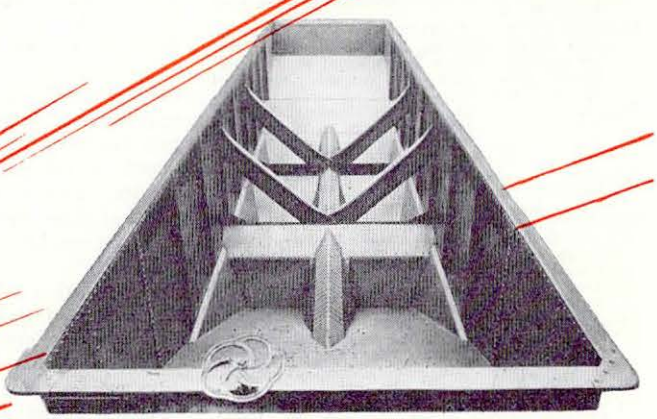
RAILROAD managements deserve commendation for their efforts to combat unregulated competition by reducing operating expenses through the adoption of more economical equipment.

The Pressed Steel Car Company contributes to this effort an epoch making light-weight hopper car. Made of U S S Cor-Ten steel and weighing only 15 tons, this car is capable of carrying 69½ tons—a pay-load ratio of 82 per cent or about 8 per cent greater than existing hopper cars.

Translated into transportation economies, this light-weight car permits more revenue tons per train resulting in less gross ton-miles—less car miles—less train miles—all vital factors which reduce operating expenses and increase net income.

The principles of design used in this car can be applied to other types and capacities of freight cars.

Decreased Dead-Weight
Increased Load Capacity
Increased Durability
Increased Strength



CAR COMPANY

PENNSYLVANIA

7926 S. Morgan St., Chicago, Ill. Annual meeting, May 2-4, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, Room 299, 610 S. Main St., Los Angeles, Cal. Club not active at present.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—J. F. Brady, Main and Barton St., St. Louis, Mo. Operation suspended indefinitely.

CENTRAL RAILWAY CLUB OF BUFFALO.—M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Operation suspended indefinitely.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings temporarily suspended.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual meeting, May 6-8, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—T. D. Smith, 1660 Old Colony Building, Chicago, Ill. Annual meeting, May 6-8, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn. Annual meeting, May 2-4, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Annual meeting, May 6-8, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Clyde S. Bailey, Washington, D. C.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, Suite 322, 910 S. Michigan Ave., Chicago, Ill. Exhibit at A. R. E. A. Convention, March 11-14, 1935, The Coliseum, Chicago, Ill.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section (See Safety Section, Association of American Railroads).

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July and August, 29 W. 39th St., New York, N. Y.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Oakland, excepting July at Los Angeles and October at Sacramento.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, Transportation Building, Washington, D. C. Annual meeting, 1935, Detroit, Mich.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton (Treas. and Asst. Sec.), First National Bank Building, Chicago, Ill. Annual dinner, December 6, 1934, Commodore Hotel, New York, N. Y.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1941 Oliver Building, Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago, Ill. Meets with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1941 Oliver Building, Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division and Motor Transport Division, Association of American Railroads.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury, Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R. Division I.

RAILWAY TIE ASSOCIATION.—A. S. Fathman, 1252 Syndicate Trust Building, St. Louis, Mo.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1428 Broad Street Station Building, Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 17-19, 1935, Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R. Signal Section.

SOCIETY OF OFFICERS, UNITED ASSOCIATIONS OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 5-6, 1935, Cincinnati, Ohio.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. A. R. Division V, Equipment Painting Section.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—N. A. Walford, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, first Friday of each month, except July, August and September, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—D. J. Higgins, Gardner-Denver Company, 332 S. Michigan Ave., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 E. 98th St., Cleveland, Ohio. Annual meeting, May 2-4, 1935, Hotel Sherman, Chicago, Ill. (Tentative).

WESTERN RAILWAY CLUB.—C. L. Emerson, C., M., St. P. & P., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Equipment and Supplies

Santa Fe Budget $21,243,645

Directors of the Atchison, Topeka & Santa Fe have approved a budget of $21,243,645 for 1935 capital expenditures. Of this amount, $7,030,548 is to be spent on new projects, while the balance of $14,213,097 will be used in carrying to completion work authorized in previous years and which is unfinished or not yet undertaken. A total of $2,250,000 will be spent on air conditioning 280 sleeping, diner, observation, club and chair cars. Approximately $1,600,000 will be spent in 1935 for new rails and fastenings. The road has on hand 10,743 tons of 102-lb. rails and plans to purchase an additional 27,292 tons of 112-lb. rails and fastenings, sufficient to lay 135 track-miles, and 24 track miles of 90-lb. rails and fastenings. Track alinement work calls for an appropriation of $1,261,000. The most important part of the work will consist of the elimination or improvement of sharp curvature in mountain territory to aid in meeting the demands of the public for faster passenger service. Directors also approved the purchase of three 660-hp. Diesel electric motor cars and one Diesel electric switching locomotive.

Continuation of the rebuilding and enlargement of facilities at Bright Angel hotel, Grand Canyon, was authorized. The principal carry-over items are unexpended appropriations for construction of the Los Angeles Union Passenger Terminal, and the completion of the line from Boise City to Las Animas and of the line from Farley to Colmor, N. M., aggregating $9,000,000.

LOCOMOTIVES

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has applied to the Interstate Commerce Commission for a modification of the order in which the commission approved the expenditure of the proceeds of a loan of $1,716,000 for which it had applied to the Public Works Administration so as to add to the program the air-conditioning of 26 new passenger coaches and the purchase of two high-speed streamline locomotives from the American Locomotive Company at an estimated cost of $87,500 each.

FREIGHT CARS

THE NATIONAL RAILWAYS OF MEXICO have placed an order with the General American Transportation Company for 200 box and 200 gondola cars.

PASSENGER CARS

THE SOUTHERN PACIFIC, in conjunction with the air-conditioning of 260 passenger cars, will modernize 41 chair cars, of which 15 will be virtually rebuilt and 26 completely overhauled. Reclining type chairs will be installed, floors will be rubber tiled, washrooms improved and interiors brightened with lighter colored paints.

SIGNALING

THE PITTSBURGH & LAKE ERIE has ordered from the Union Switch & Signal Company material for a centralized traffic control installation at New Castle Junction, Pa.

MISCELLANEOUS

NORFOLK & WESTERN.—The Valve Pilot Corporation, New York, has received an order from the Norfolk & Western for a locomotive valve pilot for use on a freight locomotive.

THE ERIE has issued plans and specifications for the construction of a new ferryboat to be paid for with P.W.A. funds as was reported in the *Railway Age* of September 1, page 273. Bids wanted by noon, December 3, at Cleveland, Ohio. The boat was designed by Millard Brothers, 17 State street, New York. It will have a length overall of 234 ft.; a breadth over guards of 64 ft., and a hull breadth of 45 ft., and will be arranged for carrying both passengers and vehicles.

Air-Conditioning

PULLMAN COMPANY.—The installation of air-conditioning equipment in Pullman-owned cars is being carried out in the various Pullman shops at the rate of 35 cars a week. The work will be gradually speeded up until 60 or 70 cars are equipped each week.

THE UNION PACIFIC has placed an order with the Pullman Car & Manufacturing Corporation for air conditioning apparatus for 91 cars, including 17 dining cars, 13 observation cars, 21 chair cars and 40 coaches. Installation is to be made in the Pullman shops.

THE READING contemplates installing air-conditioning equipment in 20 cars to include 11 coaches, 5 passenger and baggage, 2 cafe cars, 1 parlor cafe car and 1 parlor coach.

Supply Trade

George T. Willard is now associated with the **P. & M. Company,** Chicago.

David M. Curry, has joined the development and research staff of the **International Nickel Company, Inc.,** with headquarters at New York.

J. B. Harris, Jr., operating as **Harris & Butler,** has allied himself with the **Rumsey Electric Company,** 1007 Arch street, Philadelphia, Pa. He carries with him the **Delta-Star Electric Company,** Chicago, sales representation.

Roswell P. Cooley is now a member of the firm of **Hall-Keiles Travel Company, Inc.,** 11 West Forty-Second street, New York City. Mr. Cooley was formerly for many years eastern manager of the Vapor Car Heating Company, New York.

The Kelvinator Corporation, Detroit, Mich., has opened a factory sales branch at 830 Rush street, Chicago, with **G. E. Rogo** as manager and **A. E. Cadwell,** formerly with Kelvinator's Boston branch, as head of the commercial division.

Harry M. Green has been appointed manager of mechanical goods sales, Pacific Coast division, **United States Rubber Products, Inc.,** New York; this division is comprised of the Los Angeles, Cal., San Francisco, Portland, Ore., Seattle, Wash., and Salt Lake City, Utah, branches. Mr. Green will co-ordinate his activities with those of **J. B. Brady,** general manager of the Pacific Coast division, with headquarters at San Francisco, Cal., and in addition, will continue as manager of mechanical goods sales in the San Francisco branch.

Thomas T. Watson, who joined the metallurgical department of **Lukens Steel Company,** Coatesville, Pa., in August, 1931, has been appointed development and service metallurgist. He will be engaged principally in service and sales work in connection with Lukens Nickel-Clad Steel. Mr. Watson was born in Scotland 35 years ago and was graduated in 1923 from the Royal Technical College, Glasgow, with the degree of associate of the R.T.C. Until 1925 he was assistant metallurgist at David Colville & Sons, iron and steel manufacturers of Scotland. He then became metallurgist at the Clyde Alloy Steel Company, serving there for two years. From 1927 to 1930 he was assistant metallurgist at Dorman Long & Company, iron and steel manufacturers of England. He came to the United States in 1930 and engaged as a consulting metallurgist in New York until he joined the Lukens organization in 1931.

G. G. Coolidge, assistant to the president of the **Harbison-Walker Refractories Company,** Pittsburgh, Pa., has been elected a vice-president and a director of that company. Mr. Coolidge who has served for 28 continuous years with that company was graduated from Yale University in 1904. Shortly after his graduation he became connected with the Delaware, Lackawanna & Western and later left the railroad to go with the Westinghouse Air Brake Company, Wilmerding, Pa. In 1906 he entered the service of the Harbison-Walker Refractories Company and has

G. C. Coolidge

been actively identified with this interest ever since. He first served as a member of the Pittsburgh district sales office; five years later, in 1911, he was appointed district sales manager at Pittsburgh. In 1921, he was appointed assistant general sales manager and in 1929, assistant to the president.

Fred W. Venton, assistant manager of the railroad sales department of the **Crane Company,** Chicago, has been promoted to manager of that department, with the same headquarters. He was born in Cleveland, Ohio, on November 14, 1881, and was educated at Armour Institute of Technology, Chicago. During the early part of his

Fred W. Venton

career he was employed in the shops of the L. H. Prentice Company, and the Chicago, Burlington & Quincy, while later he served as chief engineer of several hotels in Chicago and of the McClintock estate. In 1910, he entered the employ of the Crane Company as traveling engineer and in 1915 was promoted to assistant manager of the railroad sales department, which position he has held until his recent promotion.

Construction

CANADIAN NATIONAL—Contracts have been awarded for a number of projects on the Western lines of this company, work on all of which is now well under way. A contract for the construction of a new station at Flin Flon, Man., has been let to P. W. Graham & Sons, Ltd., Moose Jaw, Sask. This structure consists of a one-story frame and stucco building, 28 ft. by 104 ft., on concrete foundations. The station will be heated by a two-pipe low pressure steam return system. All track work, which involved the construction of a ¼-mile extension to the main line and an industrial track of the same length, was carried out by company forces. A contract for the laying of about 9,000 lin. ft. of universal joint cast iron pipe, 10 in. and 4 in. in diameter, in the vicinity of Transcona, Man., has been awarded to the Dominion Construction Company, Winnipeg, Man. The Nelson River Construction Co., Ltd., was awarded a contract for the laying of about 11,000 lin. ft. of 6-in. cast iron pipe at Harris, Sask.

DELAWARE & HUDSON.—The New York Public Service Commission has approved as not excessive a low bid of $119,037, submitted by Foley Brothers, Inc., New York City, for the elimination of this road's grade crossing on the Windsor-Deposit State highway in the Village of Windsor, N. Y.

NEW YORK CENTRAL.—The New York Public Service Commission has approved a revised plan involving a branch track in Canal street across Crouse avenue in connection with the elimination of grade crossings of this road in Syracuse, N. Y. The plan has been approved also by the Syracuse Grade Crossing Commission. The commission also approved a revised estimate of cost of $232,000, exclusive of land and property damages, for work on the Syracuse Junction branch and the First Ward branch of the railroad in connection with the elimination project. This estimate supersedes a previous estimate of $510,000. The railroad was authorized by the commission to do the necessary work on the Syracuse Junction branch and the First Ward branch of furnishing and installing track material, changing the existing tracks, relocating section houses, erecting right-of-way fences and making changes in telephone, telegraph and signal lines at actual cost by direct employment of labor and purchase of materials for an amount limited to $138,800. This authorization supersedes a previous one for $299,000.

PENNSYLVANIA.—This company and the Pittsburgh, Youngstown & Ashtabula have applied to the Interstate Commerce Commission for a certificate authorizing the construction of a branch line from a connection with the P. Y. & A. near Austinburg, Ohio, to a connection with the Fairport, Painesville & Eastern at Harpersfield shale beds, 7.45 miles. The Pennsylvania also asked authority to operate under trackage rights over the F. P. & E. from the latter point to Perry, Ohio, 8 miles.

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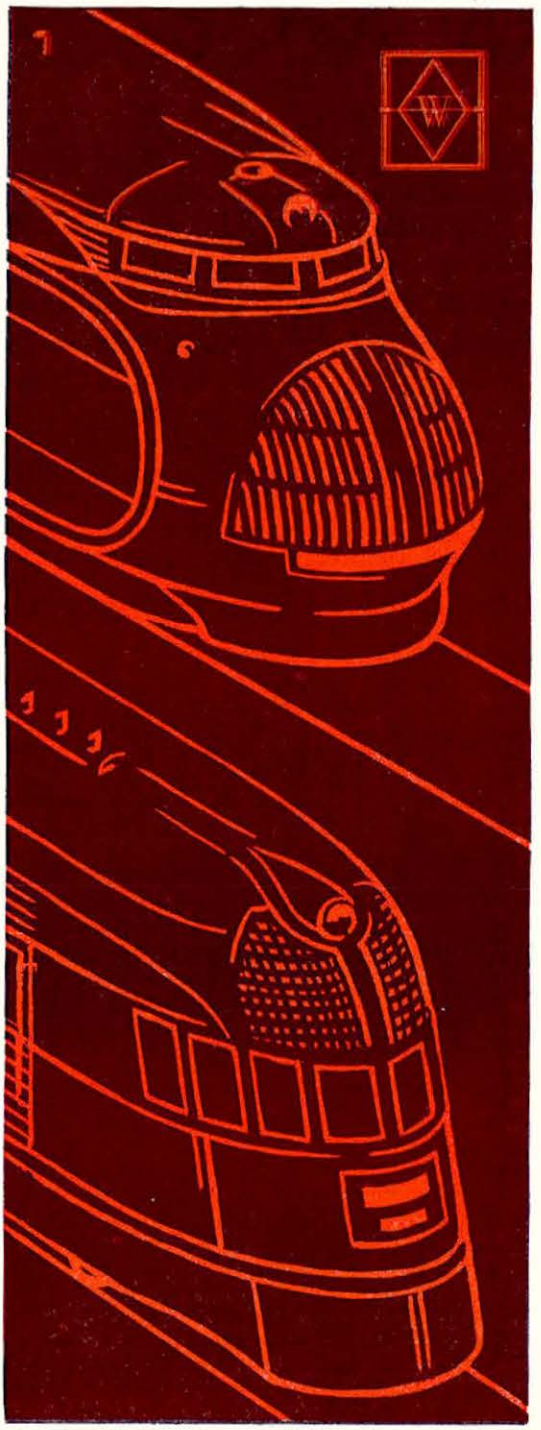
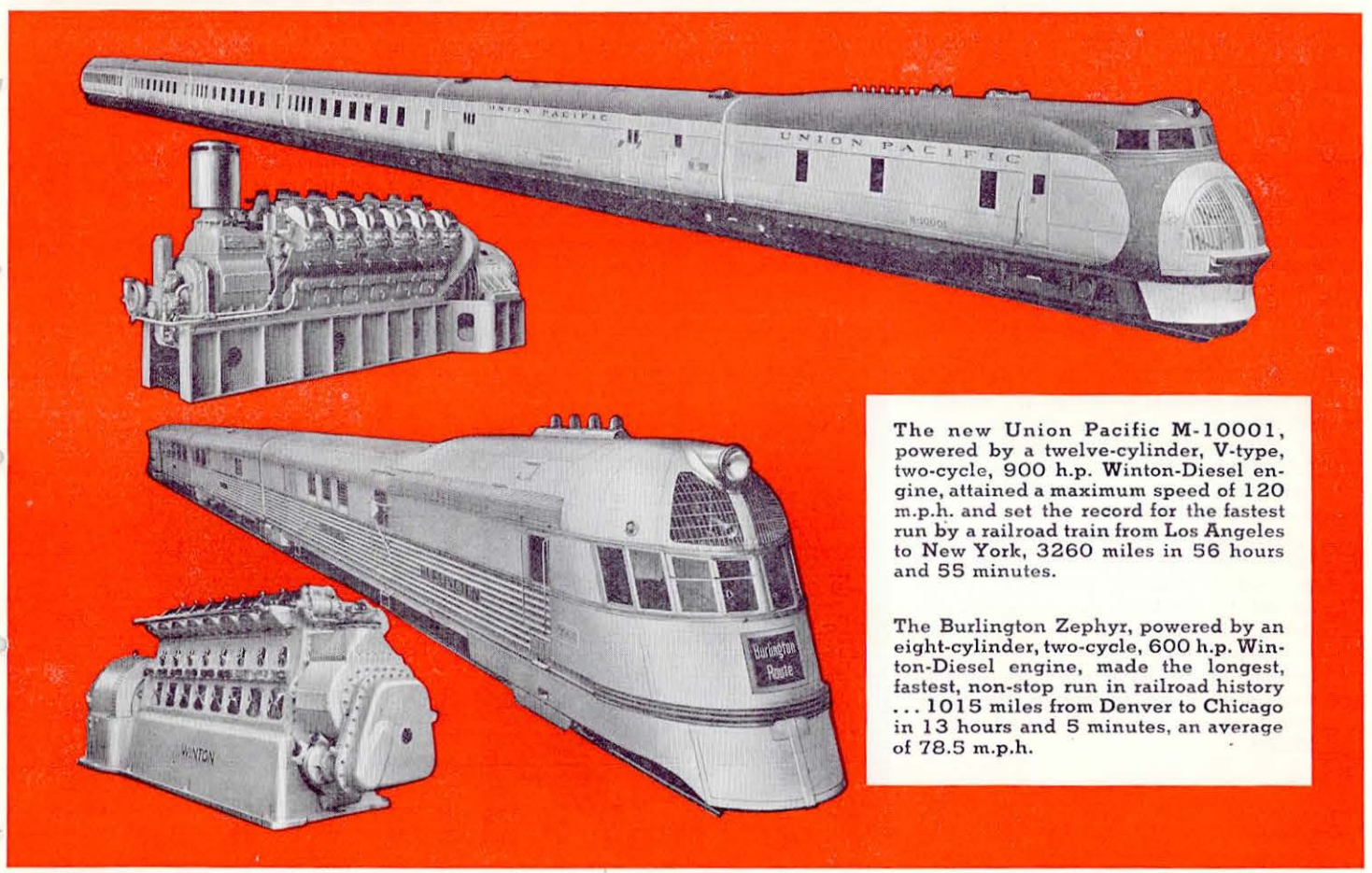


PROGRESS

GIANT arteries of commerce, transporting both man and merchandise quickly and safely to every mart in the land, the railroads are ever watchful of ways and means that will result in the development of greater comfort and the conservation of time. Since that momentous hour when the golden spike was driven to link the far distant borders of a great nation, Progress has been the watchword of those who govern the destinies of our great railroad systems. Slowly, surely, have they proceeded . . . keeping safety, efficiency and economy ever paramount. The year 1934 witnessed an achievement of notable merit marking the beginning of a new era in railroad transportation. The thrilling stories of how the new stream-lined, high-speed trains flashed over the rails to set breath-taking speed records, now lie waiting the pen of historians . . . but the factors that made these records possible are being watched with an alert eye by every railroad executive. Why? Because they point the way to new and greater Progress . . . a Progress that takes into consideration the application of the latest engineering advances in efficient, economical power. Winton Engine Corporation is grateful for its opportunity to play a part in the development of this new era of transportation and pays tribute to those far-sighted executives who select Winton-Diesel power as the answer to the demands of modern power requirements.

WINTON ENGINE CORPORATION, Cleveland, Ohio, U. S. A.

SUBSIDIARY OF GENERAL MOTORS CORPORATION



The new Union Pacific M-10001, powered by a twelve-cylinder, V-type, two-cycle, 900 h.p. Winton-Diesel engine, attained a maximum speed of 120 m.p.h. and set the record for the fastest run by a railroad train from Los Angeles to New York, 3260 miles in 56 hours and 55 minutes.

The Burlington Zephyr, powered by an eight-cylinder, two-cycle, 600 h.p. Winton-Diesel engine, made the longest, fastest, non-stop run in railroad history . . . 1015 miles from Denver to Chicago in 13 hours and 5 minutes, an average of 78.5 m.p.h.

Financial

CHICAGO GREAT WESTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon portions of its line between Horton, Minn., and Utica, 13.8 miles, and to operate over the line of the Chicago & North Western.

ERIE.—*R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation for an additional loan of $3,179,000 for taxes, principal of equipment trust certificates, and sinking fund payment.

HANOVER.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon operation as to interstate and foreign commerce of its entire line, extending from North Hanover, Ill., to Hanover, 2.4 miles.

INTERMOUNTAIN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its entire line from Barber Junction, Idaho, to Steirman, 26.14 miles.

MAINE CENTRAL.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon the line from Rumford, Maine, to Oquossoc, 36 miles.

NEW YORK & GREENWOOD LAKE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Ringwood Junction, N. J., to the New Jersey-New York state line, 8.36 miles.

PENNSYLVANIA.—*P. W. A. Loan.*—This company has applied to the Interstate Commerce Commission for modifications of its orders approving the expenditures to be made with the proceeds of loans from the Public Works Administration and authorizing security issues in connection with them, so as to limit the amount of 30-year secured 4 per cent serial bonds authorized to the amount now proposed to be issued and sold to the P. W. A., $37,000,000, and to authorize the assumption of obligation and liability in respect of $23,000,000 of 4 per cent equipment trust certificates. It is now estimated that the electrification work between New York and Washington will not require all of the $45,000,000 originally estimated and it is proposed to transfer $8,000,000 of that amount to the loans for equipment, including the conversion of 59 passenger locomotives to freight service and the building of 59 heavy passenger locomotives, making the amount of the equipment trust issue $23,000,000 instead of $15,000,000.

RAHWAY VALLEY.—*Extension of Bond Maturity.*—This company has been granted permission by the Interstate Commerce Commission to extend until December 1, 1944, the maturity of two bonds, one for $14,000 and the other for $28,092.97, which were issued originally to mature on December 1, 1934.

ST. LOUIS SOUTHWESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Pine Bluff Arkansas River to abandon as to interstate and foreign commerce the entire line of the latter company, extending from Rob Roy, Ark., to Reydel, 26.4 miles.

UNION PACIFIC.—The Interstate Commerce Commission has authorized the Los Angeles & Salt Lake to construct an extension 11.3 miles southwesterly from Mound Spur, Utah, and to operate its Desert Mound spur, 4.2 miles long.

YOSEMITE VALLEY.—*Reorganization.*—The Yosemite Valley Railway has applied to the Interstate Commerce Commission for authority to issue 2,000 shares of stock to be exchanged for second-mortgage bonds of the Yosemite Valley Railroad and to purchase and operate the line.

Average Prices of Stocks and of Bonds

	Nov. 27	Last week	Last year
Average price of 20 representative railway stocks..	36.93	35.34	36.43
Average price of 20 representative railway bonds..	74.65	73.35	62.83

Dividends Declared

Atchison, Topeka & Santa Fe.—Preferred, $2.50, semi-annually, payable February 1 to holders of record December 31.

Atlanta, Birmingham & Coast.—$2.50, semi-annually, payable January 1 to holders of record December 12.

Baltimore & Cumberland Valley Extension R. R.—$1.75, semi-annually, payable January 1 to holders of record December 31.

Boston & Albany.—$2.25, payable December 31 to holders of record November 30.

Chesapeake Corp.—63c, quarterly, payable January 1 to holders of record December 7.

Chestnut Hill.—75c, quarterly, payable December 4 to holders of record November 20.

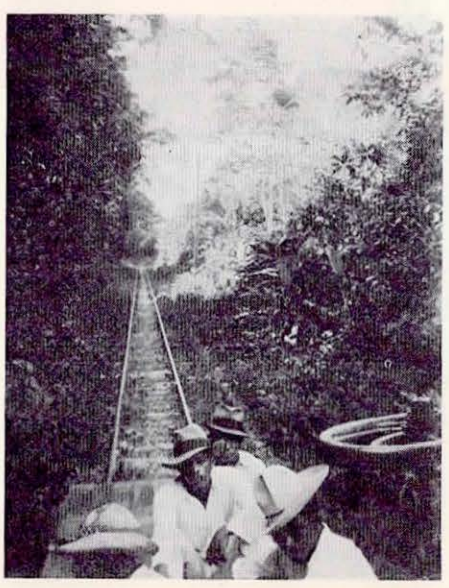
Erie & Pittsburgh.—87½c, payable December 10 to holders of record November 30.

Reading.—Second Preferred, 50c, quarterly, payable January 10 to holders of record December 20.

Richmond, Fredericksburg & Potomac.—$2.00; Voting and Non-voting Common, $2.00, both payable December 31 to holders of record December 22.

Saratoga & Schenectady.—$3.00, semi-annually, payable January 15 to holders of record December 31.

* * *



Typical Jungle Scenery—Complete with Natives—Along a Branch of the Standard Fruit & Steamship Company's Railroad near La Ceiba, Honduras

Railway Officers

EXECUTIVE

Hill New L. & N. President

James B. Hill, president of the Nashville, Chattanooga & St. Louis, was elected president of the Louisville & Nashville to succeed the late Whitefoord R. Cole at a meeting of the directors of the L. & N. at New York on November 27.

Vilas and Dike Made Vice-Presidents of C. & N. W.; Walters Retires

Frank Walters, vice-president in charge of operation and maintenance of the Chicago & North Western, with headquarters at Chicago, has retired, effective December 1. George B. Vilas, general manager, has been appointed vice-president and general manager in charge of operation, and Chester T. Dike, chief engineer, has been appointed vice-president and chief engineer in charge of maintenance of way and structures. Mr. Dike has also been appointed vice-president in charge of maintenance of way and structures of the Chicago, St. Paul, Minneapolis & Omaha, a subsidiary.

Mr. Vilas has been connected with the North Western continuously throughout the 47 years of his railway experience. He was born on April 18, 1868, at Ogdensburg, N. Y., and was educated at Phillips Exeter Academy, Exeter, N. H. In 1887, he joined the Chicago & North Western as a station helper at Paullina, Iowa, later serving in this capacity at various other points. In 1890, he was appointed agent at Kenosha, Wis., and in

George B. Vilas

1896, he was sent to Milwaukee, Wis., as freight agent. Seven years later Mr. Vilas was transferred to the operating department as trainmaster at Milwaukee, being advanced to assistant superintendent at Baraboo, Wis., in 1908. Two years later he was further promoted to superintendent, and in 1910 he was sent to Chicago as assistant general superintendent. From 1915 to 1919 Mr. Vilas served as general superintendent at Chicago, and at the end of this period he was made assistant general

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DO YOU REALIZE

THAT THE

FLANNERY FLEXIBLE STAYBOLT

HAS ALL THESE

ADVANTAGES

?

TELLTALE TYPE. Our Hollow Flexible Staybolt, with hole extending entire length of the body, and into the head, covering every breakable portion of the bolt. The Telltale Hole is Copper Plated to prevent corrosion within the hole.

This type is tested by our Electric Contact Method, and does not require stripping exterior of boiler for test.

The **NU-TATE PROCESS of HEAT TREATMENT and SURFACE HARDENING** after forging is used on all Flexible Staybolts manufactured by this Company, which provides:

Hardened head surfaces to minimize seat friction.
Increased strength in head and neck of bolt.
Restoration of grain structure in the material.

THESE ARE EXCLUSIVE FEATURES OF THE FLANNERY FLEXIBLE STAYBOLT.

GUARANTEED FOR LIFE OF THE FIREBOX

FLANNERY BOLT COMPANY
BRIDGEVILLE, PENNA.

manager with the same headquarters. In 1924 he was promoted to general manager, which position he was holding at the time of his recent appointment.

Mr. Dike has been connected with the North Western continuously for 36 years. He was born on August 13, 1871, at Woodstock, Ill., and was educated at Cornell College, Mt. Vernon, Iowa. Mr. Dike entered railway service in April, 1890, as a chainman on the Northern Pacific. In 1896, he was appointed chief engineer of the Mason City & Clear Lake, at Mason City, Iowa. Two years later he went to the Iowa, Minnesota & Northwestern (now part of the C. & N. W.) as chief engineer, and from 1899 to 1901 he served as resident engineer on the North Western in charge of the location and construction of the I. M. & N. W. From the end of this period until 1902 Mr. Dike served in a similar position with the Peoria & North Western and the Verdigre extension of the North Western. In 1903 he was appointed division engineer on the C. & N. W., serving in this position and as resident engineer in charge of the location and construction of various branch lines until 1907, when he was appointed superintendent of the Pierre, Rapid City & North Western (part of the C. & N. W.). During 1909 and 1910 he served as engineer and superintendent of construction of various new line projects of the North Western, including the Belle Fourche Valley and the James River Valley. In 1911, Mr. Dike was promoted to general superintendent of the Minnesota and Dakota divisions, with headquarters at Huron, S. D., and, during federal control of the railroads, he served successively as assistant general superintendent at Boone, Iowa, and

Chester T. Dike

assistant general manager at Omaha, Neb. In 1920, following the termination of federal control, Mr. Dike was appointed engineer of maintenance and in 1931 he was promoted to chief engineer, which position he held until his recent appointment.

Mr. Walters is bringing to a close 52 years of railroad service of which 32 have been with the North Western. He was born on December 25, 1864, at Cedar Falls, Iowa, and entered railway service in 1882 as a car checker on the Minneapolis & St. Louis. In 1883 he went with the Illinois Central, serving successively as an operator, agent and trainmaster until 1886, when he went to the Burlington, Cedar Rapids & Northern (now part of the Chicago, Rock Island & Pacific) as an operator, later being promoted to train dispatcher. Later he served with this road

Frank Walters

successively as chief train dispatcher, chief clerk to the vice-president and division superintendent, retaining the latter position when the B. C. R. & N. was acquired by the Rock Island. Mr. Walters entered the service of the North Western in 1902 as assistant division superintendent, being advanced to superintendent at Sioux City, Iowa, in the following year. Two years later he was promoted to assistant general superintendent at Norfolk, Neb., with jurisdiction over the Lines West of the Missouri river, and in 1906, he was made assistant general manager at Omaha, Neb. From December, 1906, until June, 1918, he served as general manager of the Lines West, being promoted to general manager of the system, with headquarters at Chicago, at the end of this period. Mr. Walters has served as vice-president in charge of operation and maintenance since 1924.

John W. Rimmer, general freight traffic manager of the Boston & Maine and the Maine Central has been appointed vice-president in charge of traffic of these roads, with offices both in Boston and Portland, Me.

OPERATING

G. W. Curtis, trainmaster on the Eastern division of the Western Pacific, with headquarters at Wendover, Utah, has been promoted to superintendent of the same division, with headquarters at Elko, Nev., succeeding **H. J. Beem,** who has been transferred to the Western division, at Sacramento, Cal., replacing **T. E. Coyle,** deceased. **J. J. Duggan,** chief dispatcher of the Western division, at Sacramento, has been promoted to trainmaster at Wendover to succeed Mr. Curtis.

TRAFFIC

A. L. Kreamelmeyer, chief clerk to the general traffic manager of the St. Louis-San Francisco, has been appointed assistant to the general traffic manager, with headquarters as before at St. Louis.

E. G. Baker, assistant general passenger agent at Kansas City, has been transferred to St. Louis. **W. L. English,** supervisor of agriculture at Springfield, Mo., has been appointed to the newly-created position of industrial and agricultural commissioner, with the same headquarters. **D. F. McDonough,** executive general agent at Birmingham, has been appointed general agent at Jacksonville, Fla., succeeding **J. C. Midyette. H. L. Morrison,** general agent at Chicago, has been transferred to Detroit, Mich., to replace **J. E. Henderson.**

A. A. Drummond, whose appointment as sales traffic manager in the New York, New Haven & Hartford's new department of sales and traffic development, was noted in the *Railway Age* of November 24, page 656, first entered the service of the New Haven in 1907 as clerk in the freight office at Bridgewater, Mass. During his service with the New Haven and subsidiary companies, Mr. Drummond has

A. A. Drummond

filled various positions in the operating, accounting and traffic departments. He was appointed assistant freight traffic manager in June of this year, which position he has held until his recent appointment.

ENGINEERING AND SIGNALING

W. D. Supplee, division engineer of the Buffalo division of the Pennsylvania, has been transferred to the Philadelphia Terminal division in the same capacity, with headquarters at Philadelphia, Pa. **L. E. Gingerich,** supervisor of the Baltimore division, has been appointed assistant division engineer of the New York division, with headquarters at Jersey City, N. J.

MECHANICAL

H. T. Cover, assistant master mechanic of the Pennsylvania, with headquarters at Wilmington, Del., has been appointed master mechanic of the Buffalo division.

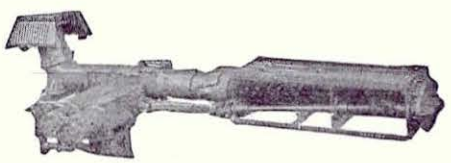
OBITUARY

T. E. Coyle, superintendent of the Western division of the Western Pacific, with headquarters at Sacramento, Cal., died on November 17.

THE BACKBONE OF RECOVERY

THE

RAILROADS



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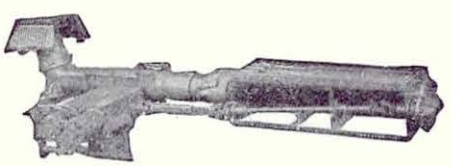

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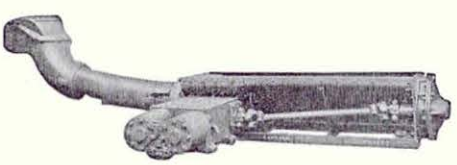


TYPE "BK" STOKER

The railroads are *more* than merely an essential element in our national transportation system.

In 1928, they *directly* employed almost 1,700,000 employees, and provided a market for the products of additional millions; in 1933, direct employees of the railroads had decreased to less than 1,000,000, and the indirect employment they provided had shrunk in greater ratio.

In 1928, the railroads disbursed over *four and a half billion dollars* in direct operating expenses, not including taxes and interest on their bonds; in 1933, these disbursements had fallen to about *two and a half billion dollars.*

Almost *twelve billion dollars* of railroad bonds are outstanding, mostly held by insurance companies, savings banks, trustees, and charitable and educational institutions.

Protect the railroads from unfair competition, make it possible for them to buy necessary equipment and supplies and to pay interest on their bonds, and you will stiffen up the backbone of recovery.

THE STANDARD STOKER COMPANY, INC.

NEW YORK • CHICAGO • ERIE

America's 2nd Must Be

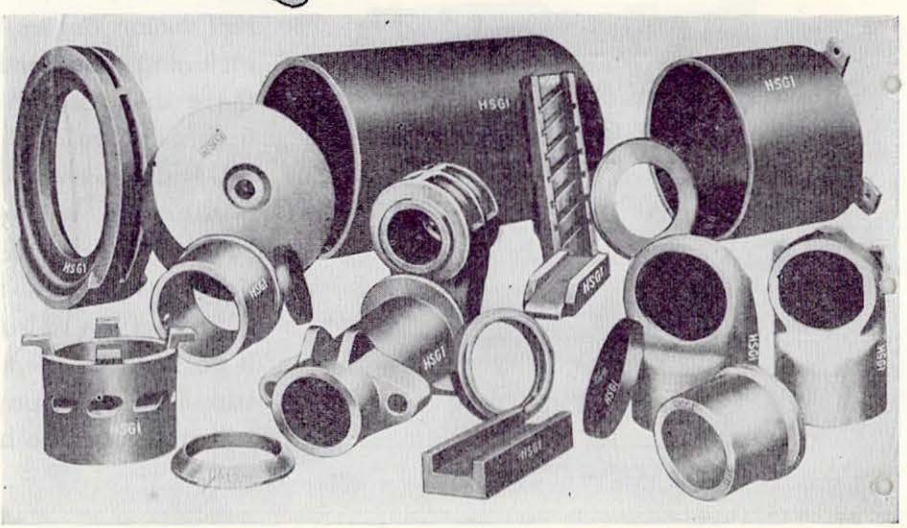
Annual Railroad Expenditures A Vital Factor to the Nation's Economic Welfare

HSGI
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished For Application

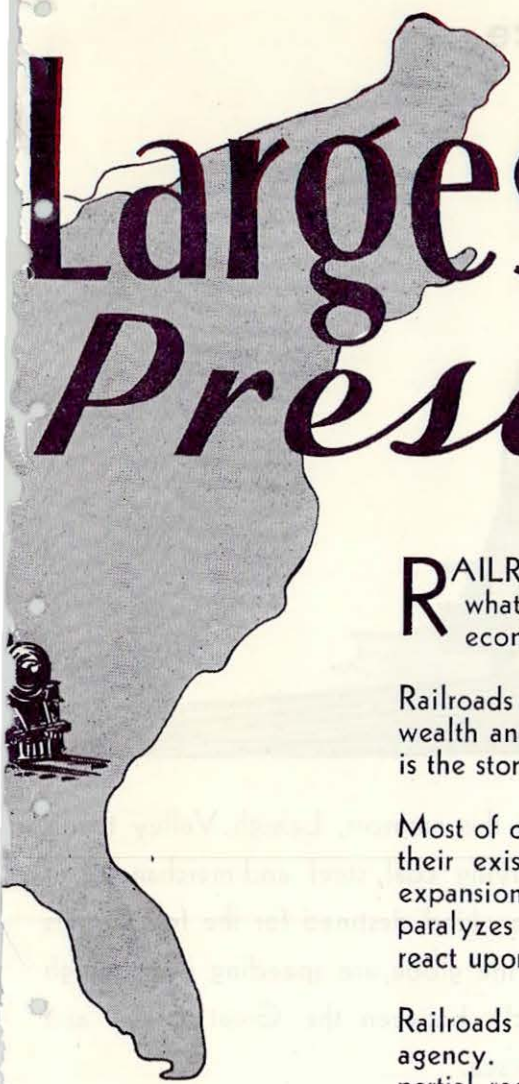
Dunbar Sectional Type Packing
Duplex Sectional Type Packing for Cylinders and Valves (Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes



Locomotive wearing parts made from HUNT-SPILLER Air Furnace GUN IRON. The resistance of this material to frictional wear and high temperatures is helping most of the leading railroads to get maximum efficiency from their power, reduce fuel consumption and prevent excessive maintenance costs.

HUNT-SPILLER *Air*

Largest Industry *Preserved*



RAILROADS are the backbone of the nation. Regardless of what may happen they will always remain a most vital and economical means of transportation.

Railroads are primarily responsible for our phenomenal growth in wealth and population. The most progressive part in our history is the story of our railroads.

Most of our communities, industries and financial institutions owe their existence directly or indirectly to the construction and expansion of the railroads, therefore, any restriction which paralyzes this great $25,000,000,000 industry must naturally react upon the physical condition of our nation.

Railroads do not ask for the strangulation of any transportation agency. They do, however, and justly so, ask for fair and impartial regulation based on the American principles of equality for all.

HSGI
Reg. U. S. Trade Mark

Industry and the public as well as the railroads will benefit by legislation which will place all carriers under the supervision and control of the Interstate Commerce Commission.

Disastrous cut-throat competition will then be abolished and traffic will flow through its natural economic channels. Railroads will get their just share—enough to insure the restoration of those huge, annual expenditures which in the past have proved to be one of the biggest factors contributing to our national prosperity.

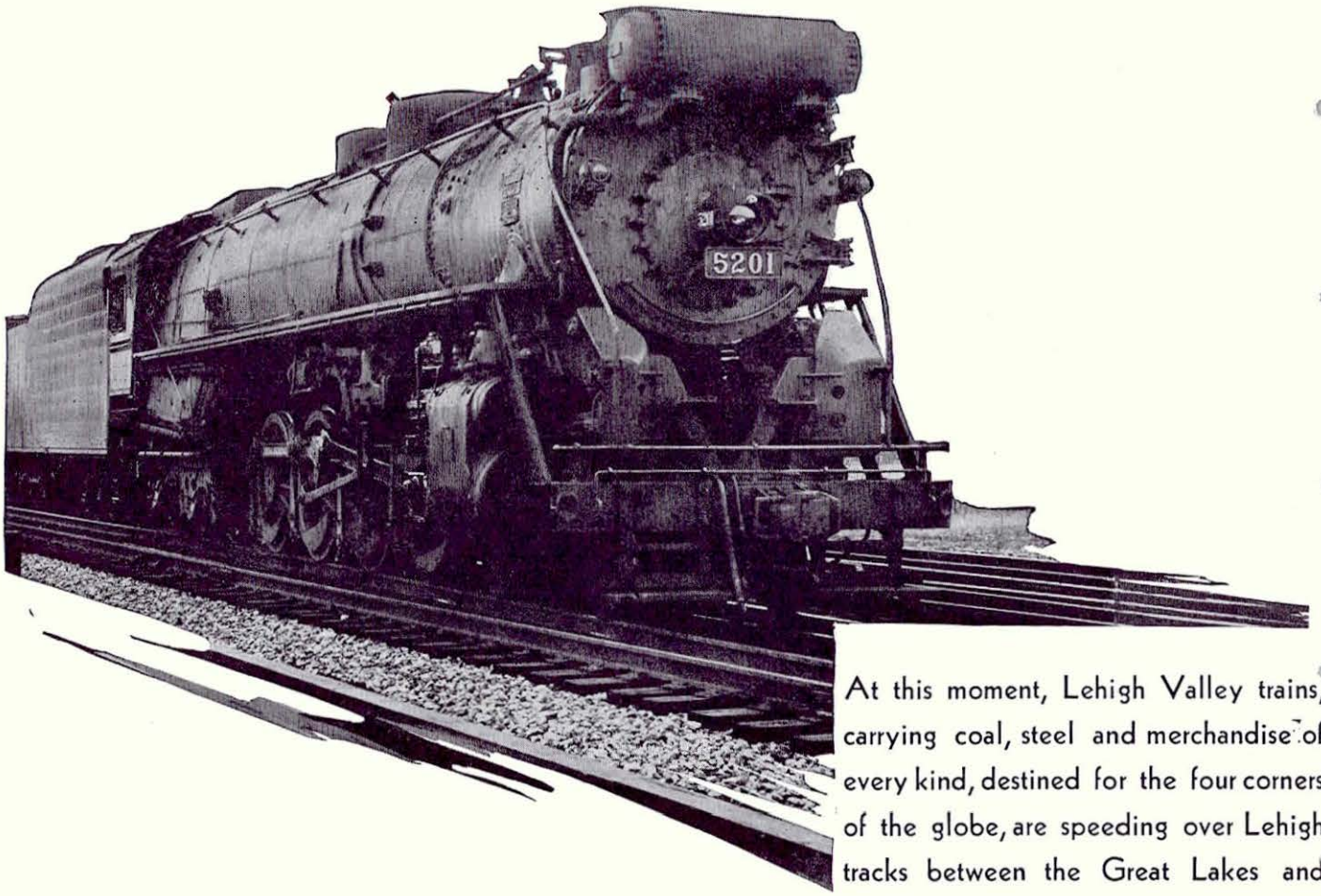
HUNT-SPILLER MFG. CORPORATION
J. G. Platt, Pres. & Gen. Mgr. V. W. Ellet, Vice-President

Office & Works
383 Dorchester Ave. South Boston, 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 70 North Bank Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

Furnace **GUN IRON**

Lehigh Valley Service



Lehigh Valley Railroad

Additional heavy-duty locomotives for freight and passenger service will be delivered in December.

At this moment, Lehigh Valley trains, carrying coal, steel and merchandise of every kind, destined for the four corners of the globe, are speeding over Lehigh tracks between the Great Lakes and the sea.

At this moment, a passenger is enjoying the air-conditioned comfort of his Pullman car. Another is enjoying the matchless Lehigh scenic route from the glass-enclosed observation lounge.

"The Route of The Black Diamond" plays an important part in the business and social life of the communities it serves.

THE PROGRESS OF OUR RAILROADS
IS A HISTORY OF OUR NATION

Lehigh Valley Railroad

THE ROUTE OF THE BLACK DIAMOND

The project was under the direction of G. S. Fanning, Chief Engineer, Erie Railroad; F. A. Howard is engineer of structures and C. H. Splitstone, Superintendent of Construction; Folwell Engineering Co., Chicago, Contractor.

1700 FOOT ERIE VIADUCT IS PROOF OF THE ECONOMY, STRENGTH AND BEAUTY OF CONCRETE CONSTRUCTION

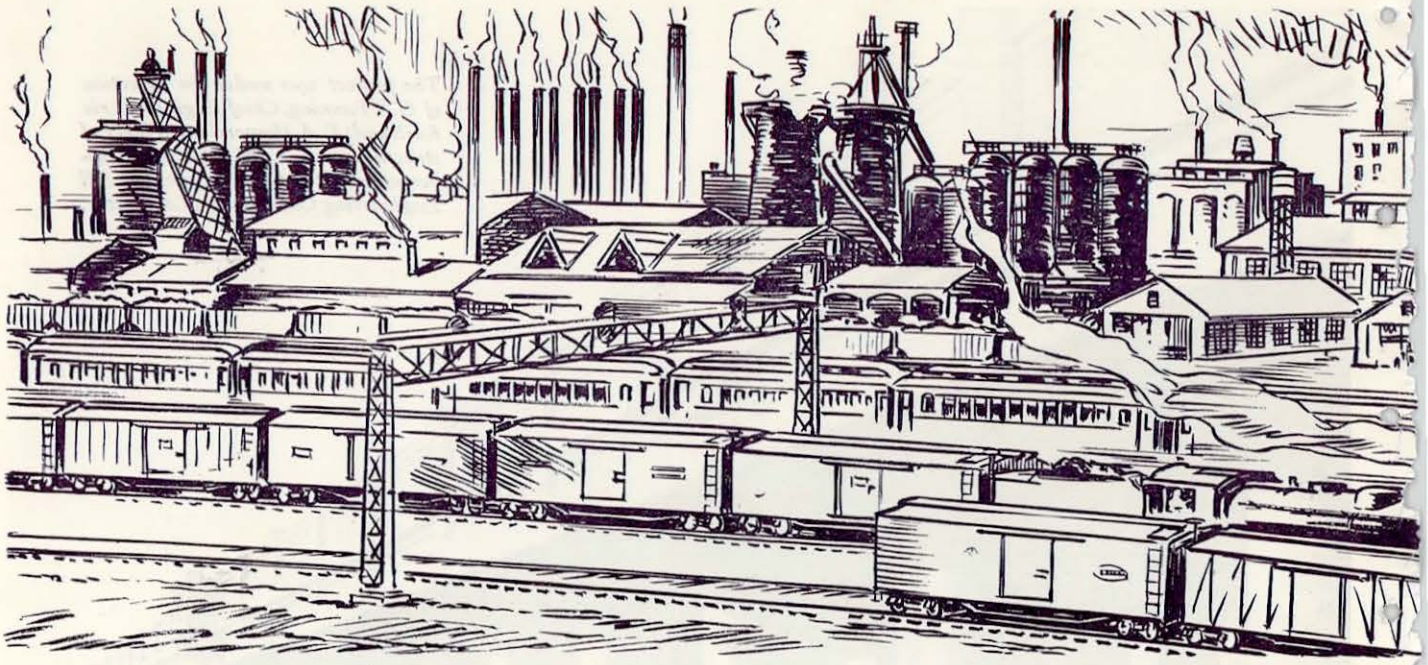
STRIDING 1700 feet over the Chemung River and through the heart of Elmira, N. Y., this great concrete viaduct is a lasting monument to the skill and foresight of Erie engineers and to the enduring strength and beauty of concrete.

Here are a few highlights on the job:

- The viaduct is flat slab construction—carries two and three tracks—and eliminates all grade crossings.
- Built one track at a time in a city street, it offered no interruption to train service during the construction period.
- Much of the concrete was placed during the winter; protective methods permitted full construction speed at little extra cost.
- Pre-cast concrete piles were driven into frozen ground with a 5000 pound hammer when only three days old.
- Added strength and density were made possible by vibration of stiff concrete mixtures.

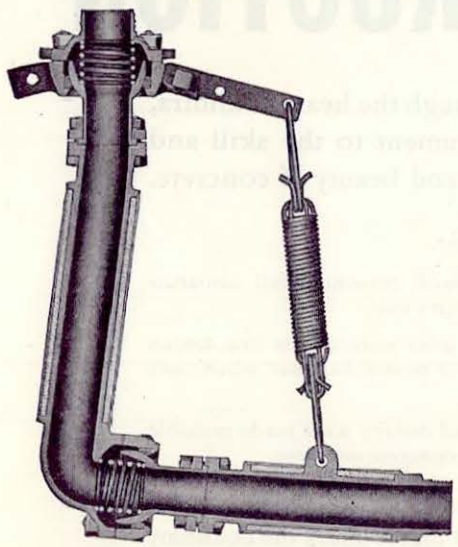
Once again concrete proves that it allows wide scope in architectural treatment . . . that it can be placed economically under adverse conditions . . . and that it offers the economy of speedy construction, long life and freedom from upkeep costs.

PORTLAND CEMENT ASSOCIATION, Room 1912, 33 W. Grand Ave., Chicago



Restoration of Railway Purc
The Closed Doors of America's M

BARCO 3V Engine Tender connections eliminate failures and delays.



BARCO Metallic Steam Heat connections are one of the outstanding factors contributing to the efficiency, economy and comforts of passenger train heating.

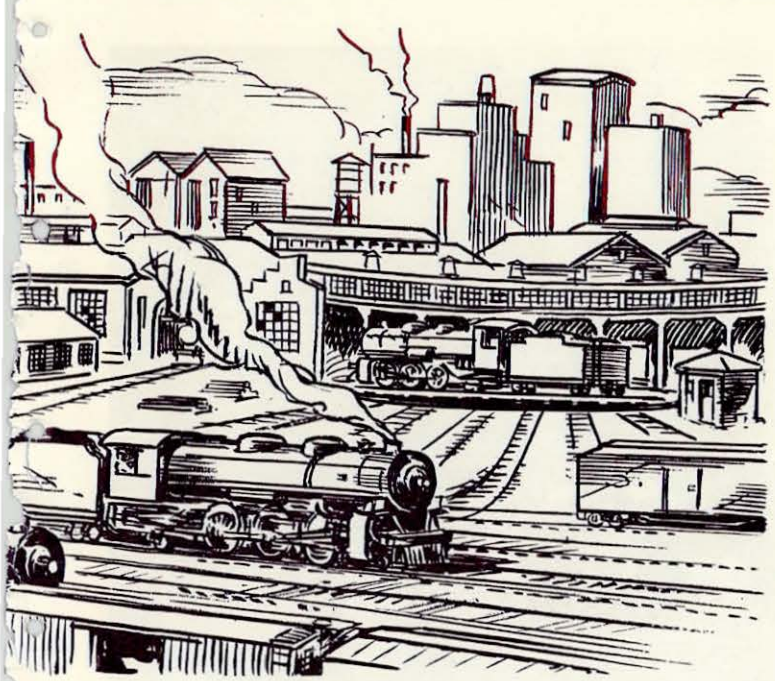
BARCO engine and tender connections, car steam heat connections, low water alarms and power reverse gears are built into many of the so-called DURABLE GOODS which railroads buy.

They perform an important function in the operation of locomotives and cars and in many cases in the shops and roundhouses in which these DURABLE GOODS are housed and maintained.

DURABLE GOODS which are self-liquidating are the most attractive investments which the railroads can make and each BARCO product assists the locomotive or car in which it is installed, or plant in which it is used, to obtain the maximum amount of economy and out-put of power and in this manner, does its share toward increasing the self-liquidating value of the improvement.

DURABLE GOODS are made up in most cases of many small devices and elements and substantial increases in the volume of orders received by the DURABLE GOODS industries assists a very large *group* of contributing industries.

BARCO

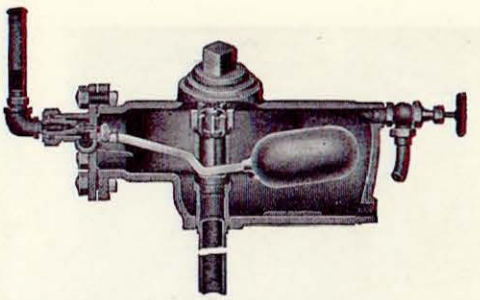


ses Will open t Vital Industries

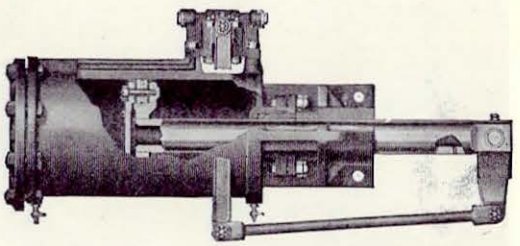
IMPORTANT as the improvement in business is for the DURABLE GOODS industry, it is more important to the railroads and the shipping public that modern, efficient engines, rolling stock and machinery be installed to decrease the cost of transportation and increase the returns on the investment which the bondholders and stockholders of the railroads receive.

America has led the World in low-cost transportation and the American railroads must lead America in low-cost transportation and service.

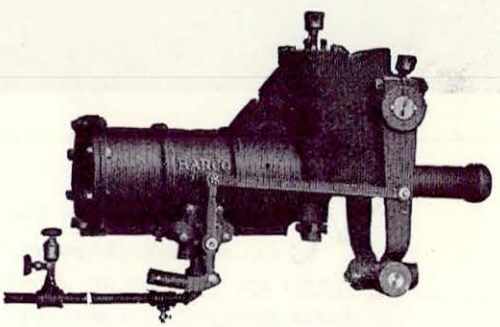
Barco Manufacturing Co.
1801 Winnemac Avenue, Chicago, Illinois
THE HOLDEN CO., LTD.
In Canada
Montreal—Moncton—Toronto
In Canada
Winnipeg—Vancouver



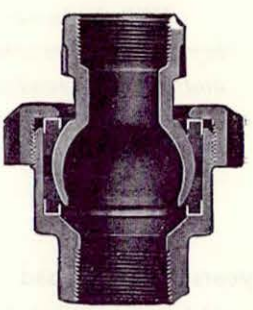
BARCO Low Water Alarm guards against disastrous boiler explosions and costly renewals of burned crown sheets.



BARCO M-1 balanced pressure Power Reverse Gears save fuel and increase locomotive efficiency.



BARCO type B-4 positive lock Power Reverse Gears save fuel and increase locomotive efficiency.



BARCO Flexible Joints are saving thousands of dollars annually by eliminating leaks and reducing replacements on locomotives and cars, and in engine terminals shops and coach yards.

PRODUCTS

NO more do these West Virginia hills echo with the deep music of the locomotive's whistle . . . the rush, the power, the thunder of the speeding train. For the steel rails have been ripped up. Stations are deserted. The Iron Horse is silent. Gone is a dependable transportation agency . . . . a good citizen . . . . a community builder. Gone are taxes that helped to pay for the maintenance of county and district schools and highways. Gone are jobs by which men lived and supported their families. Gone are purchases that helped to keep mills and mines running.

Will the busses and trucks that now rumble through these hills supply the taxes that send boys and girls to school? Will they take up the slack in purchases? Will they buy, build aud maintain roadways? Will they take care of the unemployed? Can they take the railroad's place? Experience says—No! Then—who will foot the bill? The public, as usual.

Many years ago railroad pioneers conquered a mountain wilderness and built the Norfolk and Western Railway into West Virginia and through the counties of Wayne and Mingo. Progress followed the smoke of the locomotive. A great empire spread over the hills. The years passed. The public issued bonds and built highways along the railroad. Then came great busses and trucks. They bought no rights-of-way. They did no maintenance work. They paid little or no taxes. But they operated over the public highways — unrestricted. And the public patronized them.

For years the Norfolk and Western operated its line in Wayne and Mingo Counties at steadily increasing deficits. In five years — from 1927 to 1931 — the loss rolled up to more than half a million dollars. Taxes increased. In 1931, the tax collector took $69,000 — $20,000 more than total revenues on the line. Then something happened. The Norfolk and Western petitioned the Interstate Commerce Commission for authority to abandon 54 miles of its line in the two counties — a line that was paralleled for more than 40 miles by good or fair highways.

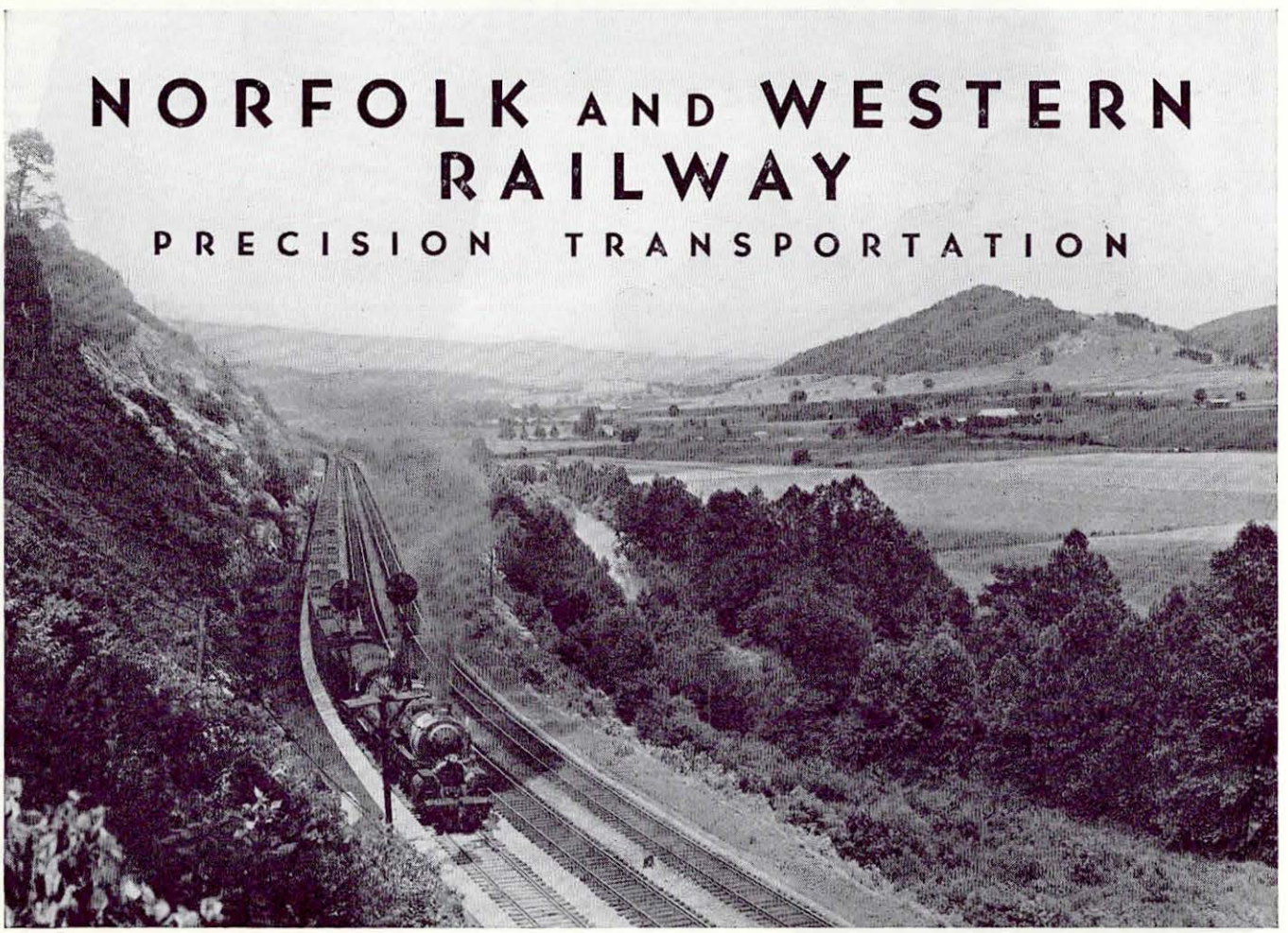
Instantly the public was up in arms. "What!" it exclaimed. "Abandon this line? No!" The public signed petitions, which declared that the loss of N. & W. taxes in Wayne and Mingo Counties would seriously impair their ability to pay interest and principal on bonds that had been issued to help build highways over which the railway's competitors operated!

But the I. C. C. said, "Yes". And today, the Iron Horse is gone.

So it goes throughout the country. From 1930 to 1933, American railroads were forced to abandon nearly 5,000 miles of track. Why? Chiefly: the development of hard-surfaced highways paralleling railway lines; withdrawal of public support from the railroads and constantly increasing diversion of traffic to the subsidized and inadequately regulated carriers operating on the public highways.

The Norfolk and Western has spent millions to develop its territory. It employs experts who work to that end. Obviously, the Norfolk and Western, or any other railroad, would not abandon any portion of its line in any territory where continued operation is justified — or where there is good prospect for future development.

There is only one solution to this menacing problem — a square deal for the railroads. That means action — definite, uncompromising action — the passage of legislation in the immediate future that will put an end to destructive competition; legislation that will put all transportation agencies on an equal basis. This means a speedier recovery of business — a definite aid in building a sound, permanent prosperity for the future. This is the public's problem. It is up to the public and the public's legislators to ACT.



OIL ELECTRICS

Railways Should Be P
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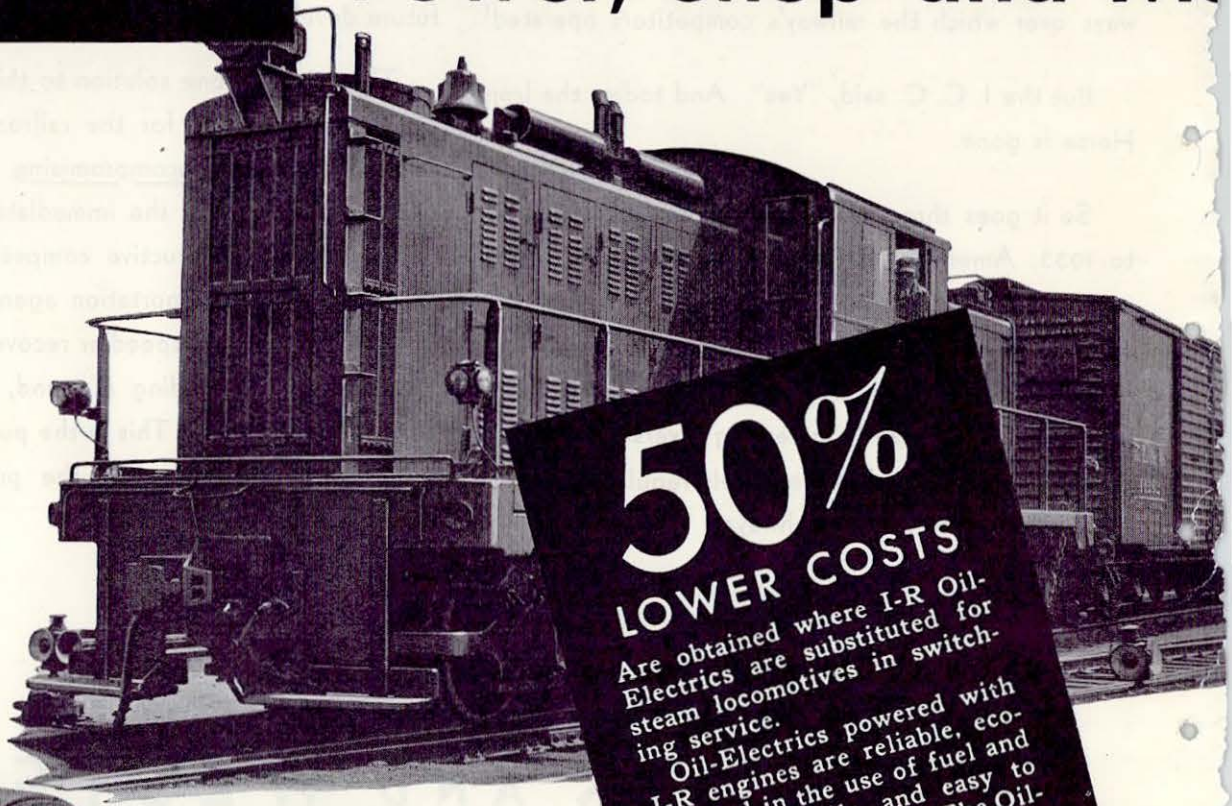
Power, Shop and M

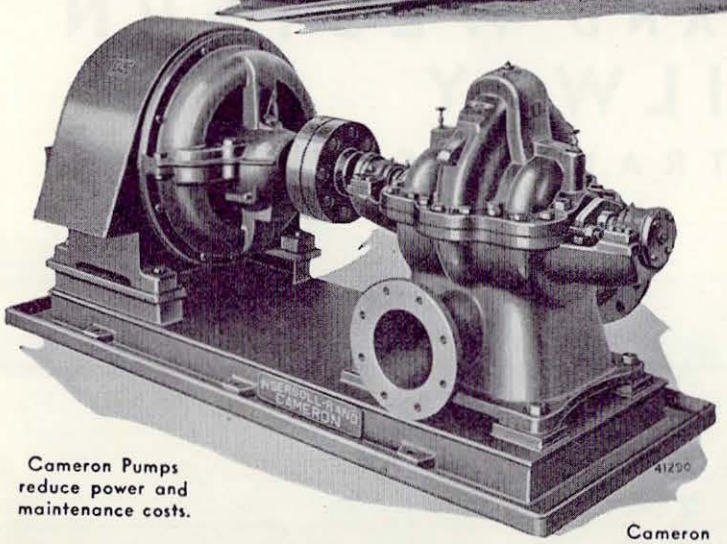


50%
LOWER COSTS

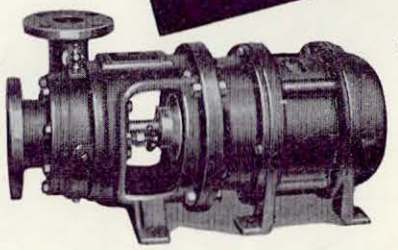
Are obtained where I-R Oil-Electrics are substituted for steam locomotives in switching service.

Oil-Electrics powered with I-R engines are reliable, economical in the use of fuel and lubricating oils, and easy to operate and maintain. The Oil-Electric locomotives enable the railways to slash their operating expenses.

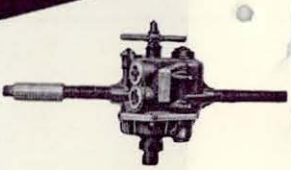
Oil-Electric rail cars provide the railways a powerful weapon to improve operation by giving more frequent service at a very low cost.



Cameron Pumps reduce power and maintenance costs.



Cameron Motorpump in capacities from 5 to 1,000 gpm.



Pneumatic Drills — the only piston drills with centrifugal speed governor.

SERVICE PUMPS

Ingersoll-

11 BROADWAY

ced in Position to take d Cost-cutting Motive ntenance Equipment

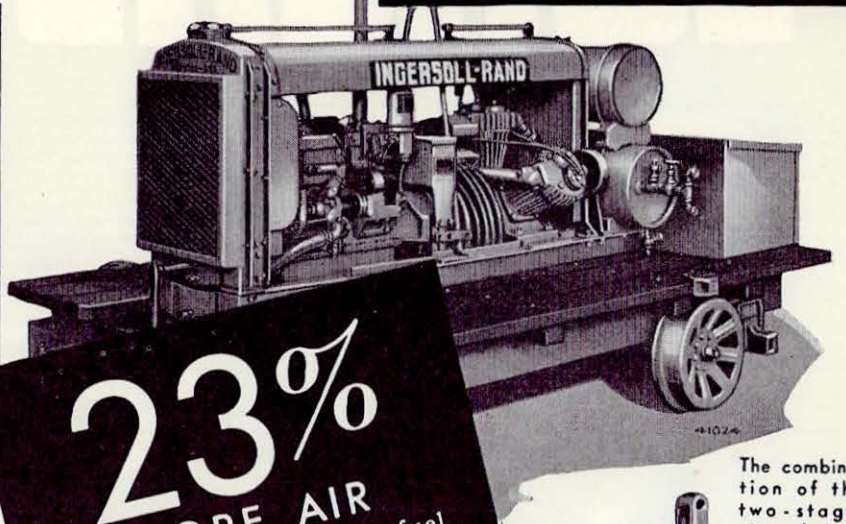
I-R has, during recent years, greatly improved the efficiency of its equipment for railroad service, and stands ready to demonstrate in a practical manner the possible economies with its latest products.

Uppermost in this class are Oil-Electric locomotives which are cutting switching costs by 50 per cent and the improved I-R air compressors and pneumatic tools which have reduced important items of operation and maintenance from 25 to 60 per cent.

The use of old, obsolete, inefficient, or badly worn pneumatic tools is poor economy. On a recent test in a plant using over 100 pneumatic tools, it was demonstrated that by adopting modern efficient tools, even though only one-half the tools were used one-half the time, enough saving was shown on air consumption, maintenance and increased output in one year's operation to cover the replacement of all pneumatic tool equipment.

I-R equipment will help the railways to help themselves.

AIR COMPRESSORS



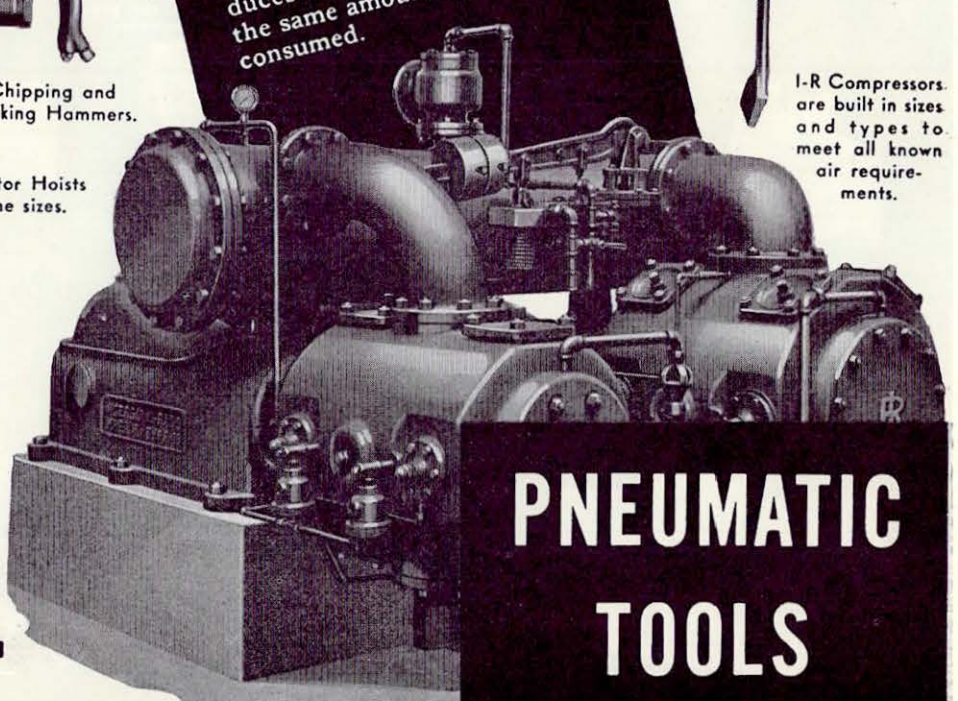
23% MORE AIR

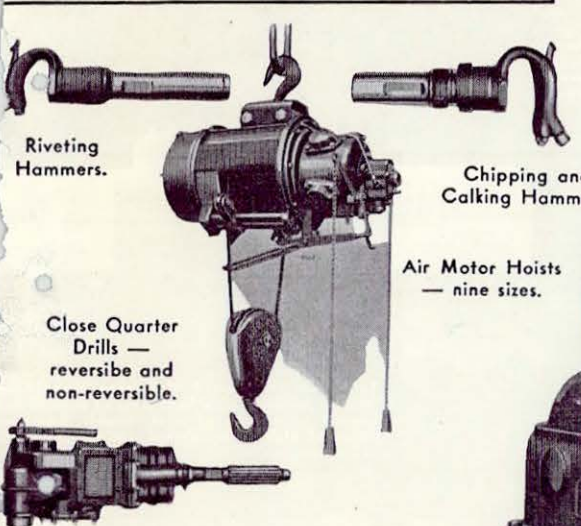
and 25% to 65% lower fuel costs per foot of air are reasons why I-R two-stage, air-cooled tie tamper compressors will save money for the railways. They have 20% less weight than older types.

And the new MT-3 low air consumption tie tamper, the most powerful pneumatic tamper, uses 24% less air. It produces 33⅓% more work for the same amount of air or fuel consumed.

The combination of the two-stage, air-cooled air compressors and MT-3 Tie Tampers gives utmost maintenance economies.

I-R Compressors are built in sizes and types to meet all known air requirements.





Riveting Hammers.

Chipping and Calking Hammers.

Air Motor Hoists — nine sizes.

Close Quarter Drills — reversibe and non-reversible.

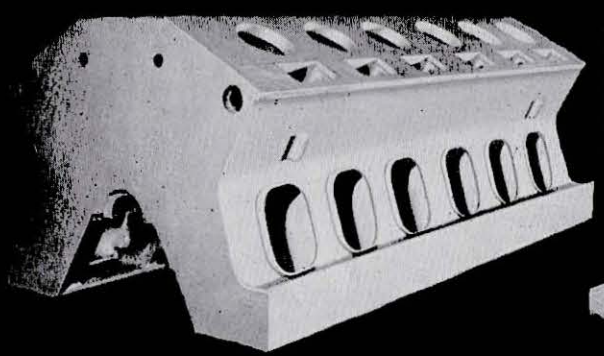
PNEUMATIC TOOLS

110-12

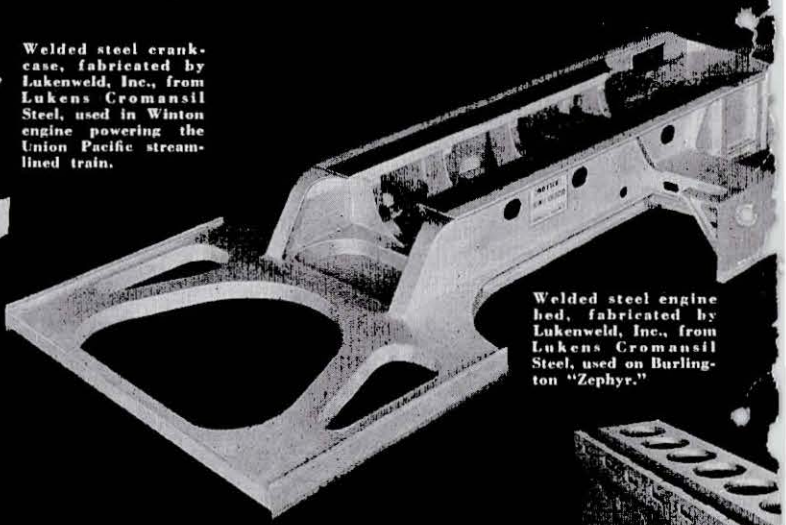
Rand

NEW YORK

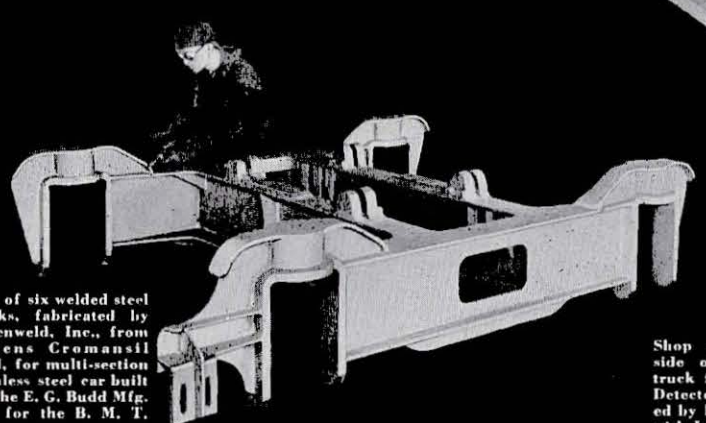
LUKENS *wants*



Welded steel crankcase, fabricated by Lukenweld, Inc., from Lukens Cromansil Steel, used in Winton engine powering the Union Pacific streamlined train.

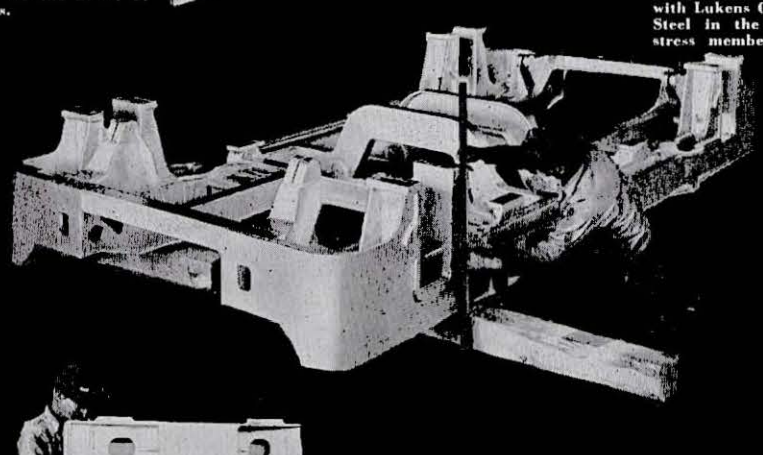


Welded steel engine bed, fabricated by Lukenweld, Inc., from Lukens Cromansil Steel, used on Burlington "Zephyr."



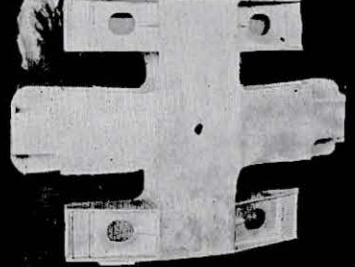
One of six welded steel trucks, fabricated by Lukenweld, Inc., from Lukens Cromansil Steel, for multi-section stainless steel car built by The E. G. Budd Mfg. Co., for the B. M. T. Lines.

Welded steel crankcase, fabricated by Lukenweld, Inc., from Lukens Cromansil Steel, used in Winton Diesel engine powering the "Zephyr."

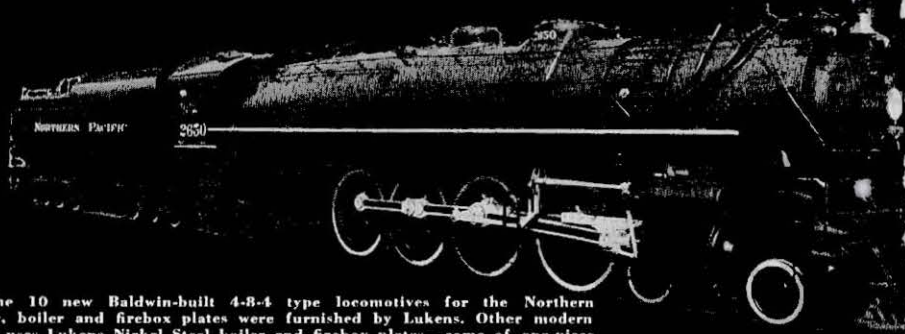


Shop view of underside of welded steel truck frame for Sperry Detector car, fabricated by Lukenweld, Inc., with Lukens Cromansil Steel in the primary stress members.

Tank cars constructed of Lukens Nickel-Clad Steel, a bi-metal of a light layer of pure Nickel bonded to a base of steel, enable transportation of high purity phenol, caustic soda, etc.



Welded steel bolster, fabricated by Lukenweld, Inc., from Lukens Cromansil Steel.



On the 10 new Baldwin-built 4-8-4 type locomotives for the Northern Pacific, boiler and firebox plates were furnished by Lukens. Other modern power uses Lukens Nickel Steel boiler and firebox plates—some of one-piece construction from wide plates obtainable only from the Lukens 206" Mill.

to buy, too!

In normal years, the railroads comprise the largest single market for the products of the steel industry.

Now, the railroads are no longer the major consumer of steel. Last year, locomotive buying was second only to 1932 as the poorest year on record. For passenger car and freight car purchases, 1933 was the worst year on record. Lack of railway purchasing accounts in no small measure for the present low operating rate of the steel industry.

The railroads need new locomotives, new cars, new equipment and structures that will require millions of tons of steel plates and other steel products.

The railroads *know* their needs. They *want* to buy! Lukens, and the entire steel industry, wants to buy, too, for increased railway purchases of steel must inevitably be reflected in the purchase of millions of dollars worth of raw materials, supplies, equipment and labor.

But to enable the railways to buy, railway earnings must be restored. Proper legislation will do it.

As go the railroads, so goes the steel industry . . . the entire durable goods industries . . . *and the prosperity of the nation!*

President,
LUKENS STEEL COMPANY
Coatesville, Pa.

LUKENS STEEL COMPANY
FIRST TO ROLL BOILER PLATE IN AMERICA
COATESVILLE, PENNSYLVANIA

Branch Offices or Agents in
Atlanta Chicago Detroit Los Angeles Philadelphia Seattle
Baltimore Cincinnati El Paso Montreal Pittsburgh Syracuse
Boston Cleveland Houston New York San Francisco Toronto

The Railroads *Need* to Buy!
The Railroads *Want* to Buy!

The railroads are primarily interested in efficient economical transportation service to industry and to the traveling public.

To render this service much new equipment and much modernization of existing equipment are needed.

The railroads need to buy and want to buy these essentials—essentials that are produced in part by practically every industry.

Given an economic opportunity to buy—the railroads have always in the past annually expended billions of dollars—their needs are greater today than ever before.

Railroad purchases extend into every part of the country—restored railroad purchasing power would return to normal earning capacity hundreds of thousands of workers and go a long way toward normal prosperity.

AMERICAN THROTTLE COMPANY, INC.

60 East 42nd Street, NEW YORK
Peoples Gas Building, CHICAGO

Canada: The Superheater Co., Ltd., Montreal

(A-895)

Manufacturers of all types of locomotive throttles used by American railroads

An OPEN LETTER from Johns-Manville to the Legislators of the Nation . . .

Johns-Manville
TWENTY-TWO EAST FORTIETH STREET
NEW YORK, N.Y.

JM PRODUCTS

We address you on behalf of a vast body of your constituents engaged in an important branch of the durable goods industries: workers in our mines and factories, members of our administrative, sales, and engineering divisions, employees of the many organizations that distribute our products.

Indeed, in a larger sense, we address you on behalf of every American citizen.

The past year and one half have shown that national recovery cannot take place without a revival in the durable goods industries. Railway purchases vitally affect a very important part of the durable goods industries. Railway purchases cannot be restored to normal unless and until railway net earnings recover.

As you know, there is certain legislation now pending, and certain additional legislation shortly to be introduced, which is designed to increase railway earnings.

We earnestly ask your support of this legislation because we are convinced that it will constitute one more important plank in the bridge that will carry us over from depression to normal economic conditions.

JOHNS-MANVILLE

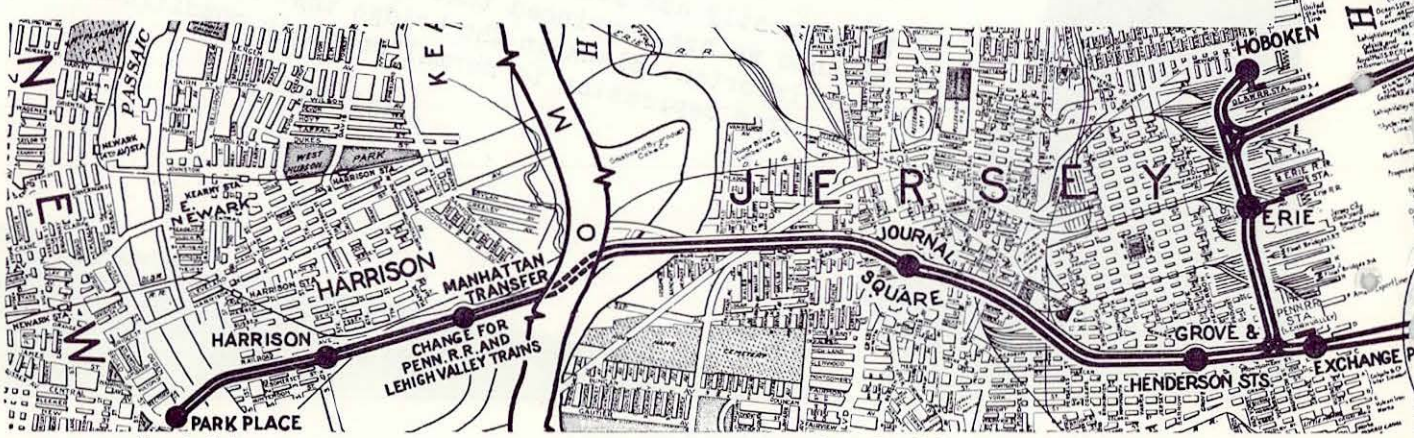
HUDSON &

THE HUDSON & MANHATTAN RAILROAD provides a connecting link between the communities of the Metropolitan area of New York lying on either side of the Hudson River. For people living on practically all of the Western and Southern trunk line and suburban railroads it furnishes frequent, rapid, convenient, safe and reliable transportation between their homes and their places of business and amusement in the financial, retail shopping, hotel and theatre districts of New York City.

Under normal business conditions the HUDSON & MANHATTAN RAILROAD has operated as many as 1,800 trains daily and transported more than 113 million passengers annually. This railroad, like the railroads with which it interchanges passengers, has suffered a shrinkage in its traffic. In 1931 the passengers carried dropped to 96 million; in 1932 to 84 million; and in 1933 to 76 million. Its present traffic is approximately 33 percent less than that of a normal year. While some of this decrease is attributable to depressed business and economic conditions and resultant unemployment, a large part is due to unregulated interstate bus competition, operating into and out of New York City through tunnels and over a bridge built with public funds, at a cost exceeding one hundred six million dollars ($106,000,000.).

Although in recent years it has been necessary to reduce operating expenses, the management has been ever mindful of the paramount importance and necessity of maintaining the property in a highly efficient and safe operating condition to meet the requirements of the public. Notwithstanding reductions in operating expenses, 1933 operations resulted in a deficit for the first time in many years. This deficit was due largely to a tax burden entirely out of proportion to earnings, as evidenced by the fact that in 1931 tax accruals consumed 21 percent of this Company's net revenue from railroad operation; in 1932 taxes took 22 percent, and in 1933, when the fixed charges on a modest capitalization were not even earned, tax accruals mounted to 24 percent of net revenue from railroad operation.

Large contributions from the heavy taxes paid by the railroads are used to finance the construction and maintenance of extensive and costly vehicular transportation arteries that are diverting traffic from the railroads and establishing competitive conditions that violate the American standard of fairness and business justice. It is from this gross injustice and unfairness that we ask legislators—both national and local—to give the railways prompt relief.



Newark, N. J. Jersey City, N. J.

MANHATTAN

MORE THAN A RAILROAD

An American Institution

This Company's Hudson Terminal Buildings, 30 and 50 Church Street in New York City, are two of America's best known and most accessible office buildings. Among their hundreds of tenants are firms of national prominence who benefit daily from the Buildings' convenient location at "The Gateway to Everywhere."

HUDSON TERMINAL BUILDINGS are also the homes of two famous luncheon and social clubs—The Railroad Club and The Machinery Club. In the membership of these two Clubs are found leaders of the great industries of America.

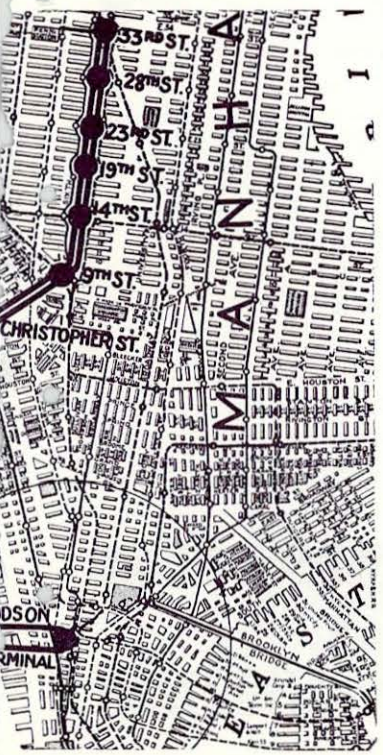
In the operation and maintenance of HUDSON TERMINAL BUILDINGS the policy of the HUDSON & MANHATTAN RAILROAD COMPANY insures a service of the highest standard and efficiency.

Complete information as to available space, rental rates, etc., may be obtained upon application to the Company.

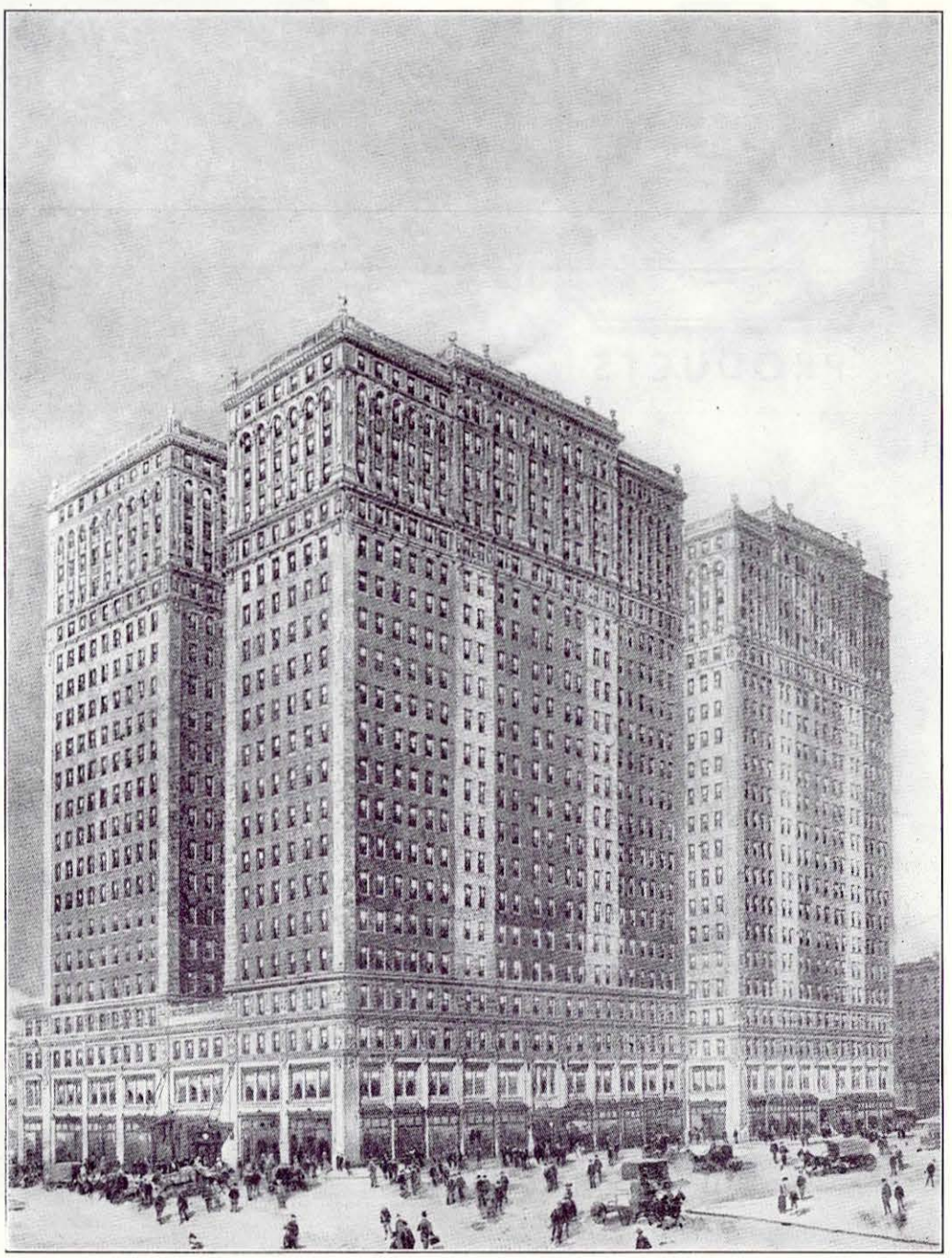
HUDSON & MANHATTAN RAILROAD 1934

HUDSON & MANHATTAN RAILROAD COMPANY

Hudson Terminal Buildings, NEW YORK



New York City



as in the past—

PROSPERITY WILL FOLLOW THE RAILS

"RAILWAY"

PRODUCTS

YOU cannot have prosperity until the purchasing power of the 26 billion dollar railway industry is restored. The railways have been and will continue to be a vital factor to the nation's economic welfare. They provide the safest, most efficient and most economical (all costs considered) form of transportation and they spend 2 billion dollars normally for equipment, materials and supplies. 435,000,000,000 revenue ton-miles and 32,000,000,000 passenger-miles are handled by the Class 1 railroads in normal times. No other transportation agency is capable to carry that load.

The railways now are suffering the full force of the depression. And through a mistaken sense of justice, they also must battle against tremendous odds, the rapid growth of unregulated and unfair competition which is wholly or partially subsidized.

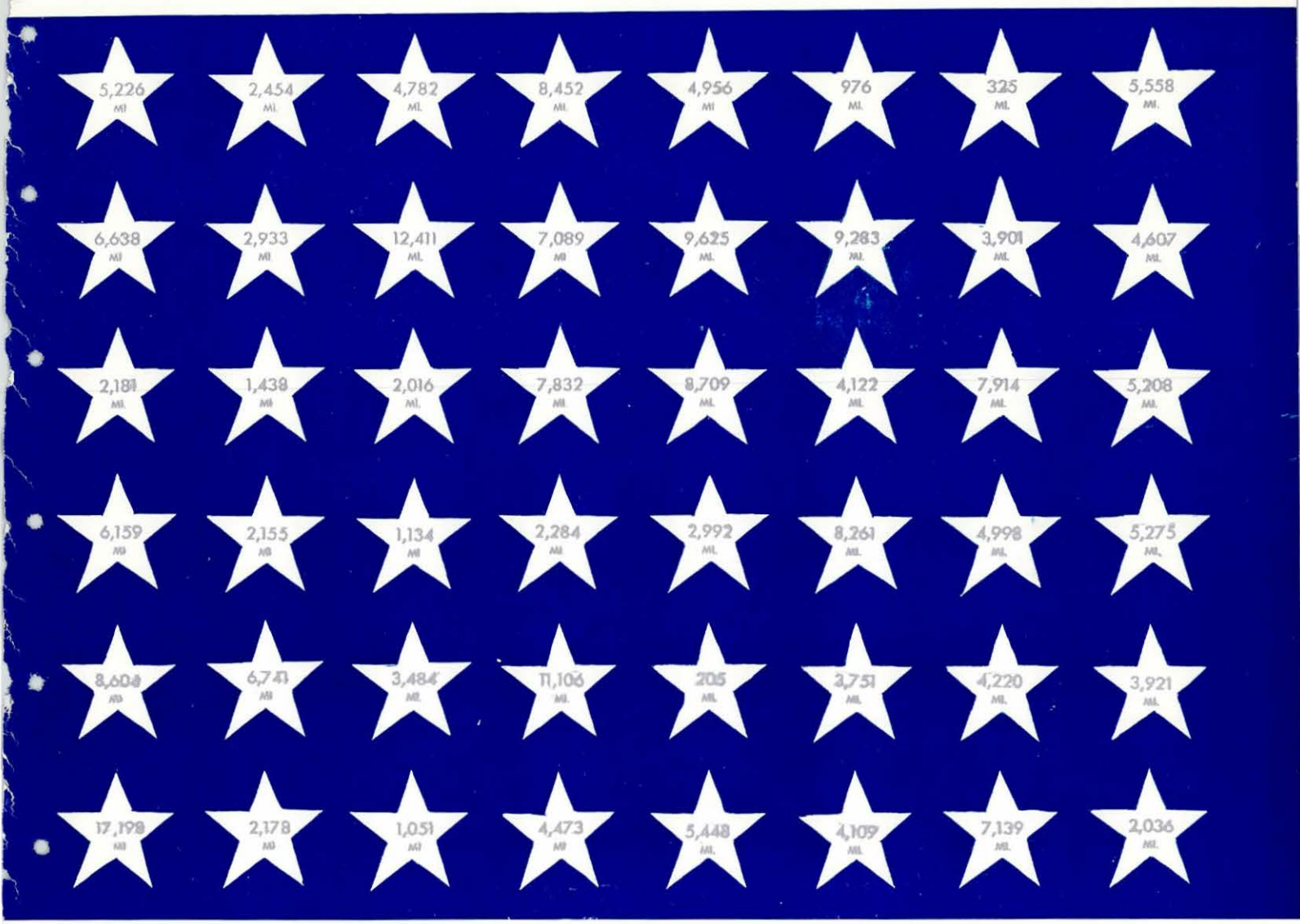
Relieved of these staggering handicaps and given their rightful opportunity to maintain adequate earnings, the railways through vast purchases of equipment, materials and supplies would provide the vitalizing impetus to the durable goods industries needed to carry this country to complete national recovery.

AMERICAN LOCOMOTIVE COMPANY

RAILWAY STEEL SPRING DIVISION

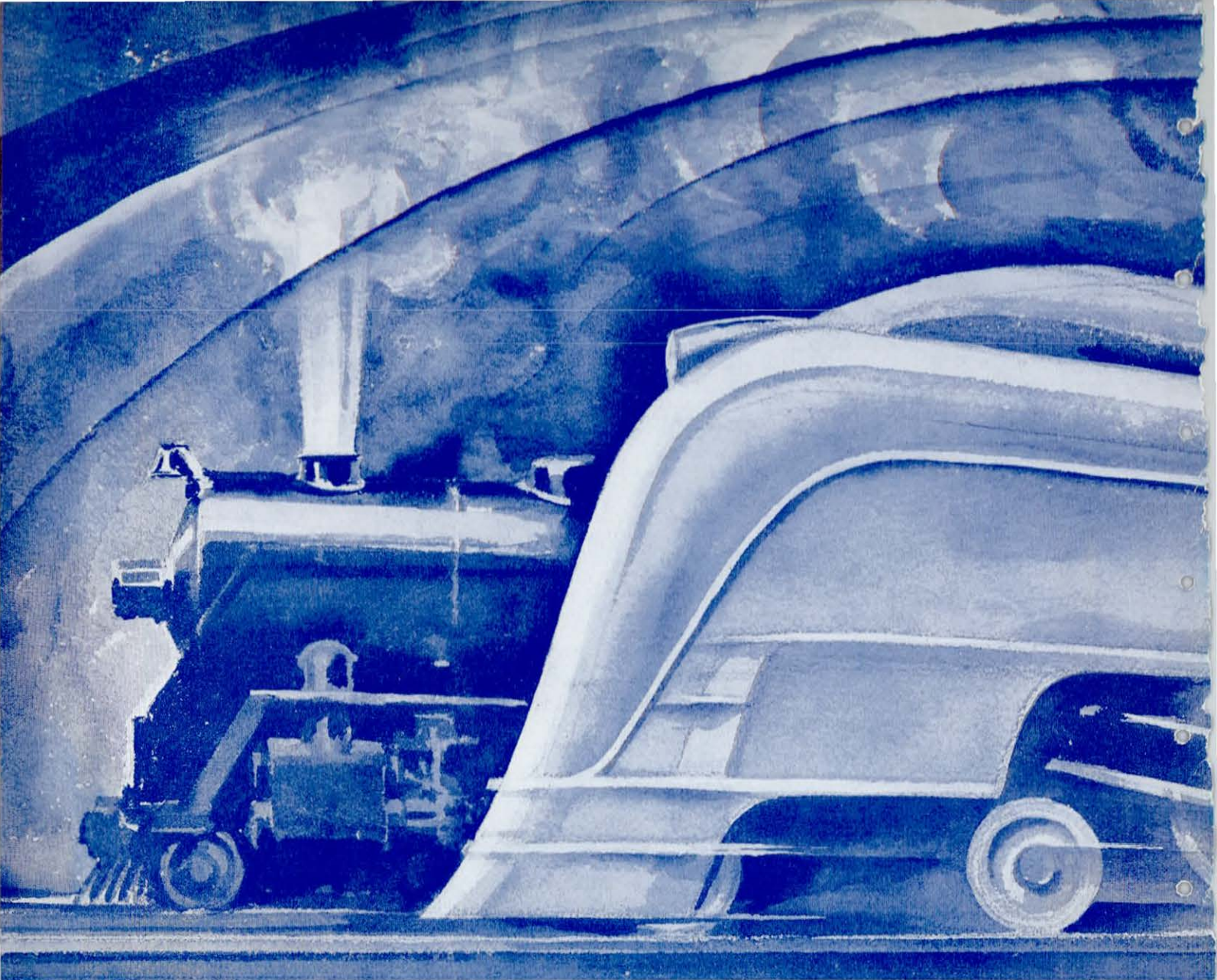
30 CHURCH STREET · NEW YORK · N·Y·

Steam railroads in the United States, totaling 247,595 miles distributed over every state in the Union, represent a total property investment account of approximately 26 billions of dollars. In normal times they are one of the largest customers of our basic industries, purchasing 23 per cent of the bituminous coal, 19 per cent of the fuel oil, 20 per cent of the total timber cut, and 17 per cent of the total iron and steel output of the country. The magnitude of these annual expenditures is evident



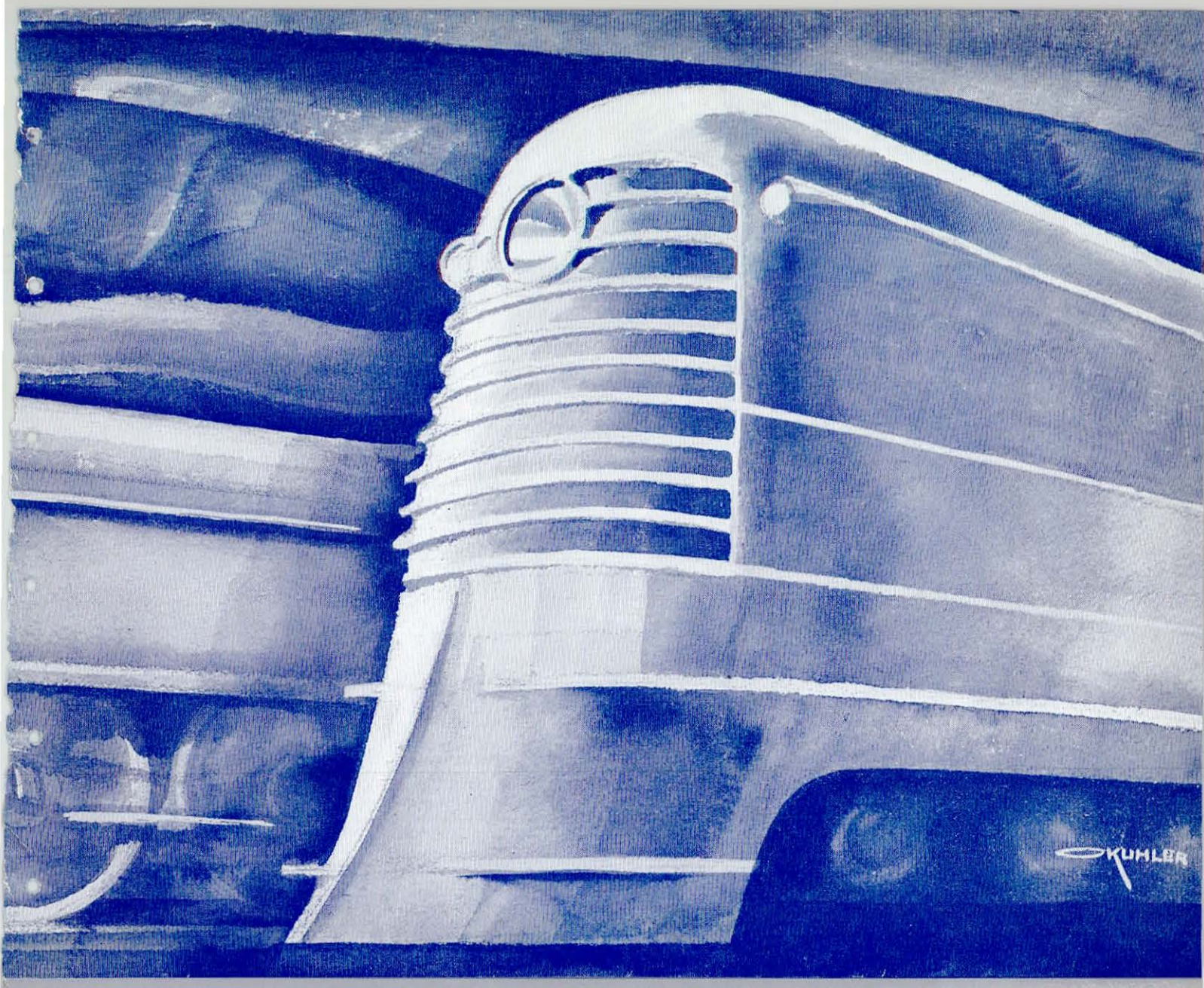
from the following partial list: Coal, $338,000,000; Fuel Oil, $82,000,000; Non-Ferrous Metals $50,000,000; Forest Products, $170,000,000; Iron and Steel, $438,000,000; Cement, $6,280,000; Lubricating Oil, $22,000,000; Stationery, $20,000,000; Paint, $30,000,000; Rubber and Leather, $9,000,000; Locomotives, $95,888,000; Freight Cars, $170,000,000; Passenger Cars, $47,000,000.

Over 4,000 manufacturing companies located in at least 38 States depend on railway purchases.



AMERICAN LOCOMOTIVE COMPANY

Motive power is the source of all operating activity of our railroads. For years, when railroad tonnage was doubling every decade, the constant demand for more and more motive power units kept the matter of obsolescence to a negligible factor. But for some years past the volume of railroad business has slowed down. The need for more and more power units no longer existed. And consequently the average age of the power units in service has steadily and progressively increased. If railroading had become a static industry, keeping present power units in a state of good repair might be sufficient. But railroading is ever changing, more so now than ever before, not only to meet new traffic demands but also to meet new and ever increasing competition. And coupled with this condition we have the locomotive builder, in an attempt to make his product more and more attractive to the purchaser, showing more progress in locomotive design in the last 10 years than in all the previous history of locomotive building.

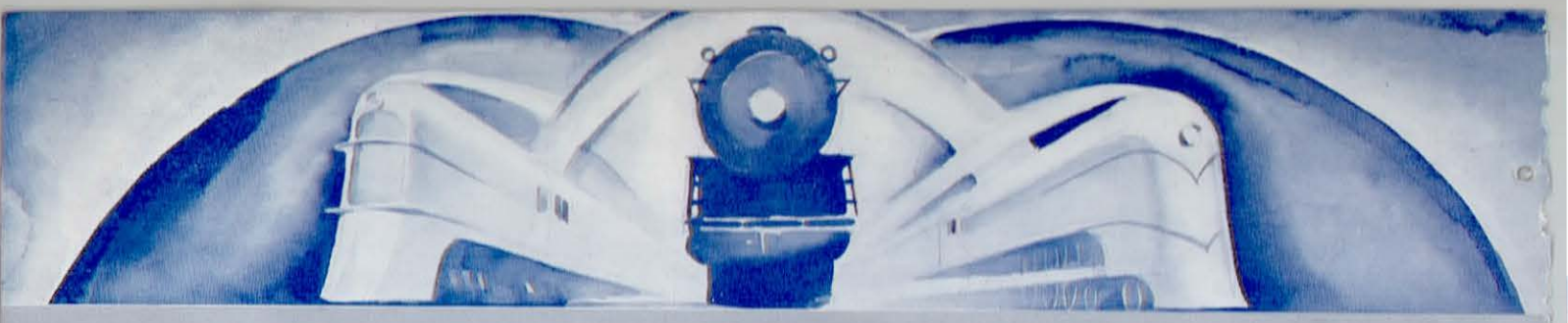


30 CHURCH STREET · NEW YORK · N·Y·

The margin between total railway operating revenues and expenses at best is very narrow. Any reduction in the latter has a magnified effect on net profits. With 80 per cent of the serviceable locomotives in the country over 10 years old, and 50 per cent over 20 years old, and progress in locomotive design making all locomotives over 10 years old practically obsolete, not only is maintenance expense much greater than it should be, but substantial operating savings that cauld be secured through the use of modern efficient locomotives are forever lost.

It is not enough in any plant that equipment be kept in a good state of repair. If the integrity of the plant is to be maintained, modern machinery must be constantly substituted for that which has become obsolete.

These facts are recognized by our railroads. They only await restoration of purchasing power.



AMERICAN LOCOMOTIVE COMPANY

Few, if any, items bought by anyone offer anything like the same opportunity for such a wide distribution of employment as does an order for new locomotives. It means much, very much, more than just some work for the locomotive builder. And, of course, it necessarily follows that when locomotive orders fall off it means much more than just the closing of the locomotive builders' shops.

For instance, upon the receipt of an order the locomotive builder immediately steps into the market for quantities of such raw material as bar iron, billet steel, staybolt iron, steel castings, brass castings, steel plate, steel angles and shapes, rivets, tubes and flues, chain, netting, pipe, boiler lagging, jacket iron, lead, lumber, paint, tin, babbitt, and bolts and nuts—all these, of course, being over and above the raw material such as pig iron, coal, fuel oil, lubricating oil, and the many special items and supplies necessary for the operation and maintenance of the locomotive builders' shops themselves. And even then he has only just started his buying. He has to buy such items as boosters, draft gears, springs, tires, wheels, truck boxes, dust guards, journal box lids, train control, tender frames, tender trucks, truck side bearings, bell ringers, brake equipment, flexible joints, washout plugs, firebox syphons, staybolts, cocks and valves, roller bearings, drifting valves, engine trucks, trailing trucks, blow-off cocks, injector steam valves, water gauges, coal sprinklers, packing rings, couplers, firedoors, firebrick, flue blowers, stokers, radial buffers, frame wedges, bed castings, grates, headlights, class and marker and signal lamps, cab lights, superheaters, feedwater heaters, injectors, cylinder lubricators, driving box lubricators, metallic packing, reverse gears, valve gears, sanders, steam gauges, safety valves, hose, jacks, tools, wrecking frogs, throttles, distribution valves, whistles, and many other special devices—all representing patented devices made by specialized companies which are industries in themselves, and many represented by several companies competing for the same item.

Therefore, all these companies must step into the market for the necessary material and supplies needed for their own operation. Furthermore, we should keep in mind that in all probability a certain amount of obsolescence has accumulated in the manufacturing facilities of all these concerns.

Here then is a self liquidating investment, offering a very wide distribution of work, that can be purchased now at a very attractive price, that can be easily financed, and that represents an investment that must sooner or later be made—all depending, of course, on a restoration of railway purchasing power.

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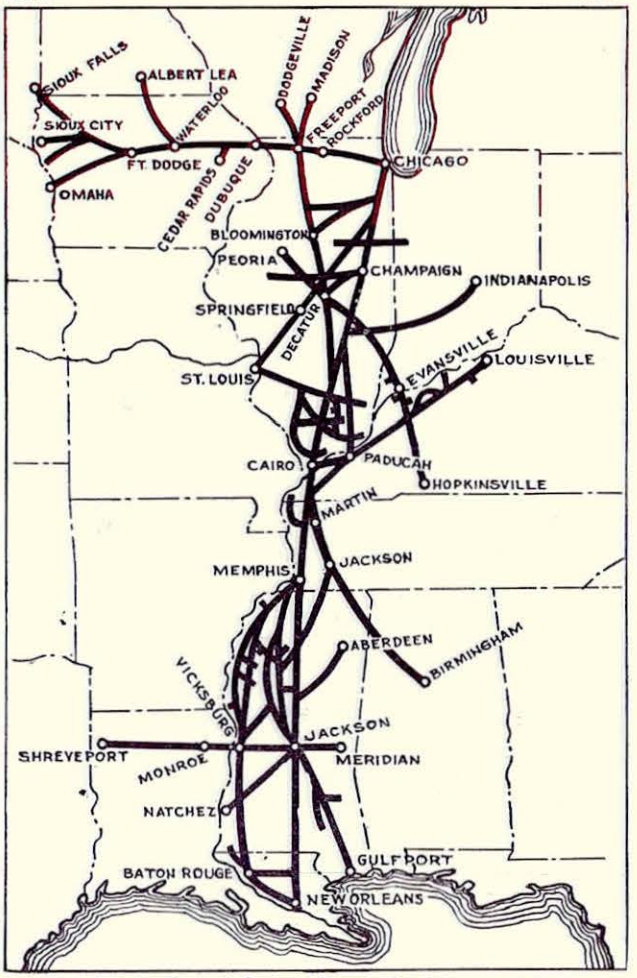
The Illinois Central System

A Partner of the People in the Mississippi Valley



The Illinois Central System Serves the Mississippi Valley

FOR eighty-odd years the Illinois Central System has been one of the outstanding institutions of the Mississippi Valley, recognized as an important factor in the agricultural, industrial and commercial development of this great central region.

When the Illinois Central Railroad Company was organized, in 1850, six-sevenths of the area of Illinois was undeveloped and unoccupied. Its principal city, Chicago, then had a population of only 29,000.

Along the 705-mile route of the proposed railroad, between Cairo and East Dubuque and between what is now Centralia and Chicago, there were only ten towns of more than 100 inhabitants, the largest of these being Galena, with a population of 6,000, and Bloomington, with less than 2,000. For the most part, the route traversed a wild, uninhabited region over which deer and wild game roamed unmolested, and "where one might travel for a whole day without coming in sight of a human habitation."

Aside from Chicago and three centers of river trade—New Orleans, St. Louis and Louisville—there was not a city of 10,000 or more in the entire territory now traversed by the Illinois Central System.

Before the Railroad Came

In that early period the commerce of the Mississippi Valley was of small consequence. Agriculture was confined largely to communities adjacent to navigable streams. Because of the utter lack of transportation, the fertile areas remote from navigation, the rich deposits of coal in Illinois, Indiana, Kentucky and Alabama, and the great pine and hardwood lumber regions of the South, were almost wholly undeveloped. Manufactures were confined largely to small sawmills and grist mills to meet the demands of local communities.

Railway transportation in the Mississippi Valley was then in its infancy. Illinois had fewer than 100 miles of primitive railroad; Indiana, 228 miles; Kentucky, 78 miles; Tennessee, none; Alabama, 183 miles; Mississippi, 75 miles; Louisiana, 83 miles; Wisconsin, none; Minnesota, none; Iowa, none; Missouri, none; Nebraska, none; South Dakota, none. In the fourteen great states in which Illinois Central System now operates, there were only 745 miles of crude railway lines and only a few small wood-burning locomotives.

Such was the state of development of the Mississippi Valley when the Illinois Central Railroad Company came upon the scene to build a railroad greater than any which then existed in the Western Hemisphere.

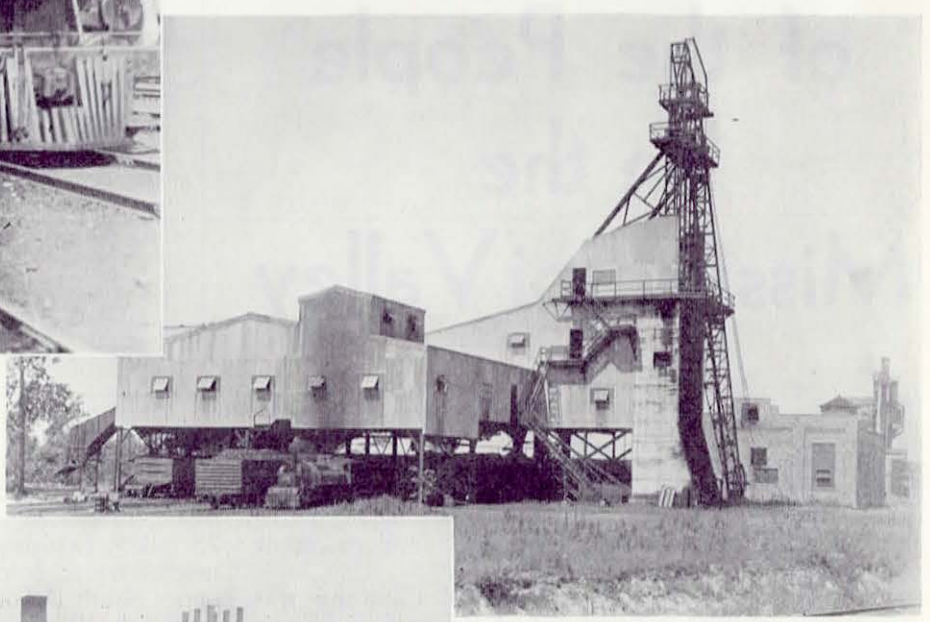
It was a formidable undertaking, fraught with seemingly insurmountable difficulties. The greatest of all was that of financing the enterprise. At that time, there was not a bank doing business in Illinois, and there were no men of wealth in this whole frontier region.

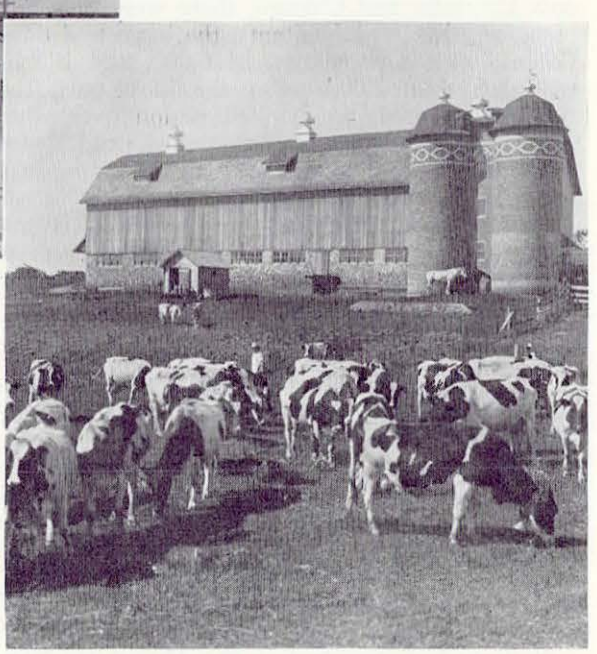
But the difficulties were surmounted. After much effort, the necessary funds were obtained from European and New England investors, and from business men of New York and other Eastern cities. Laborers were recruited in New York, Boston and other distant centers. Rails were imported from England. And within six years from the time the company was organized, the entire 705-mile railroad was completed and in operation.

A Pioneer Railroad

The Illinois Central was the first railroad to link northern and southern Illinois; the first railroad to connect the Great Lakes with all-year-round navigation on the Mississippi River; and, with its southern connection, the first railroad to provide the Upper Mississippi Valley and the Great Lakes region with an outlet to the Gulf of Mexico.

The Illinois Central ushered in the railway era in the





Mississippi Valley. No sooner was the great project under way than other companies were organized, and during the next few years the Mississippi Valley underwent a remarkable transformation. In the brief space of ten years, from 1850 to 1860, the railway mileage of the fourteen states in which the Illinois Central operates increased from less than 800 miles to more than 10,000 miles. Chicago's population increased from 29,000 to 109,000 and that of many other towns and cities experienced an equally remarkable growth. Hundreds upon hundreds of towns and cities sprang up along the new-laid rails.

Thus began a development that has continued down to the present time. In this 84-year period, the Illinois Central has gradually extended its influence and its operations, first into Iowa, then into the South, until today it has an investment in the Mississippi Valley of around $745,000,000 and operates more than 7,000 miles of railroad and 12,000 miles of trackage in fourteen states of the Middle West and South.

Dependable and efficient passenger, freight, express and mail service provided by this transportation system has contributed inestimably to the growth and prosperity of hundreds of cities and towns and farming communities and to thousands of mining and manufacturing enterprises in the Mississippi Valley.

A Partner of All Whom It Serves

The Illinois Central System has been a friend of agriculture and industrial development throughout its history. One of its first concerns was to find settlers to take up the millions of acres of fertile farm land in its

territory. While its first lines were being pushed across the prairies in the early fifties, the Illinois Central launched a widespread publicity campaign—the largest ever undertaken by an American railroad up to that time—for the purpose of attracting settlers to its territory. The advertising columns of numerous newspapers, farm journals, immigrant guides and magazines were used in the effort. Hundreds of thousands of illustrated pamphlets and posters were printed and distributed throughout the Eastern states as well as in Canada and northern Europe. As a result of this effort a tide of immigration of unprecedented proportions set in toward Illinois, and within a few years nearly all the vacant lands along the route were in cultivation.

Throughout its history the railroad has sought to encourage agricultural diversification, improved farming methods, the improvement of dairy herds and the growing of fruits and vegetables in addition to other staple crops.

Strawberry farming in Louisiana, tomato farming in Mississippi and fruit farming in southern Illinois were developed largely through the efforts and co-operation of the Illinois Central. In its efforts to aid the latter development, in the 1860's, the Illinois Central was instrumental in developing the first cars used in this country for the transportation of fruits under refrigeration, a contribution that has had a far-reaching influence upon agricultural development throughout the country.

Practical Aid for the Farmer

For many years the Illinois Central has been active in promoting dairy farming in its Southern territory. It has equipped and operated numerous agricultural and livestock exhibit trains free of charge. It has operated more than thirty demonstration farms for the benefit of farmers distant from agricultural colleges. It has conducted innumerable soil demonstrations; its agricultural and livestock experts have held thousands of meetings in rural communities; it has campaigned for the elimination of mosquitoes, cattle ticks, boll weevil and other insidious pests. It has provided hundreds of registered purebred bulls to the farmers in its territory. At the present time more than thirty bulls owned by the Illinois Central are loaned free to farmers in its Southern territory.

The Illinois Central is likewise a friend of industry. The transportation service provided by this and other railroads has been a factor of vital importance in the development of the great lumber industry in the Southern states. The railroad not only provides hundreds of lumber mills in the South with dependable transportation to Chicago and other Mid-West markets, but the railroad itself for many years has been one of the principal buyers of railway ties, piling, poles, bridge timbers, sawed lumber and other products of Southern forests.

Support for a New Industry

The development of the great coal mining industry of southern Illinois and western Kentucky is another of many illustrations which might be given of the close relationship between the railroad and industry along its lines. This development was coincident with the development of the Illinois Central Railroad and could not have taken place without railway transportation. The first shaft mine in southern Illinois was opened at DuQuoin in 1855. At that time the Illinois Central began experimenting in the use of coal in place of wood as locomotive fuel. Many persons predicted these experiments would fail. But before many years had passed, the Illinois Central had turned decisively to the use of coal, thus providing the coal industry with a new and important market for its output.

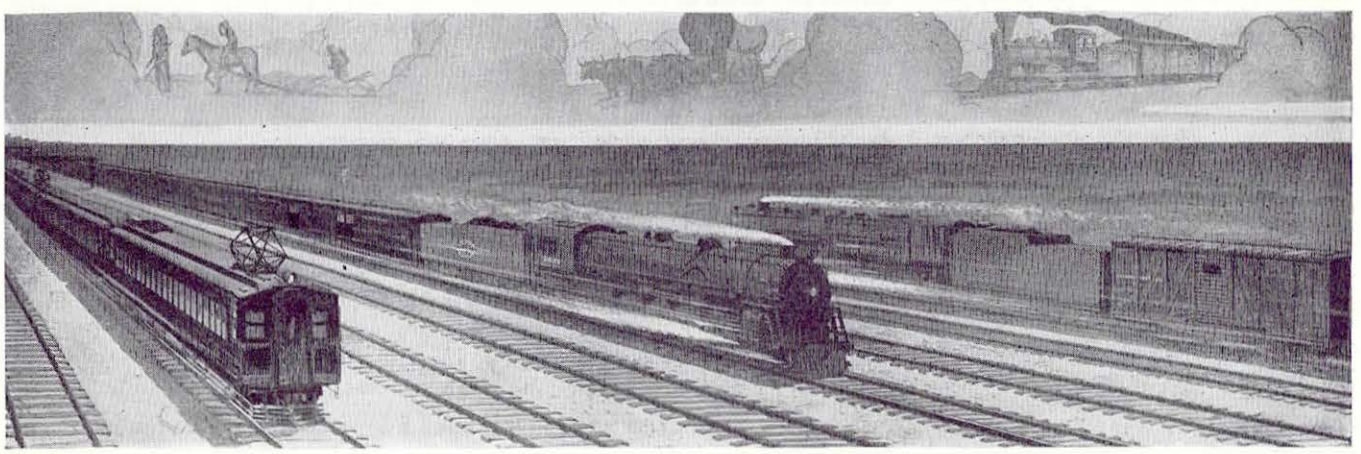
Under the stimulus of railway development and the tremendous industrial expansion which followed largely as a result of that development, coal production in Illinois mounted from 400,000 tons in 1855 to 26,000,000 tons in 1900, with the Illinois Central ranking throughout this period and down to the present time as the leading coal consumer in Illinois.

The dependable transportation service provided by the Illinois Central System has attracted thousands of manufacturing enterprises to its rails. These industries provide employment to a vast army of workers and their aggregate output runs into billions of dollars worth of products annually. Their continued and successful operation depends upon reliable and efficient all-year-round railway service.

A Great Institution, Performing a Great Service

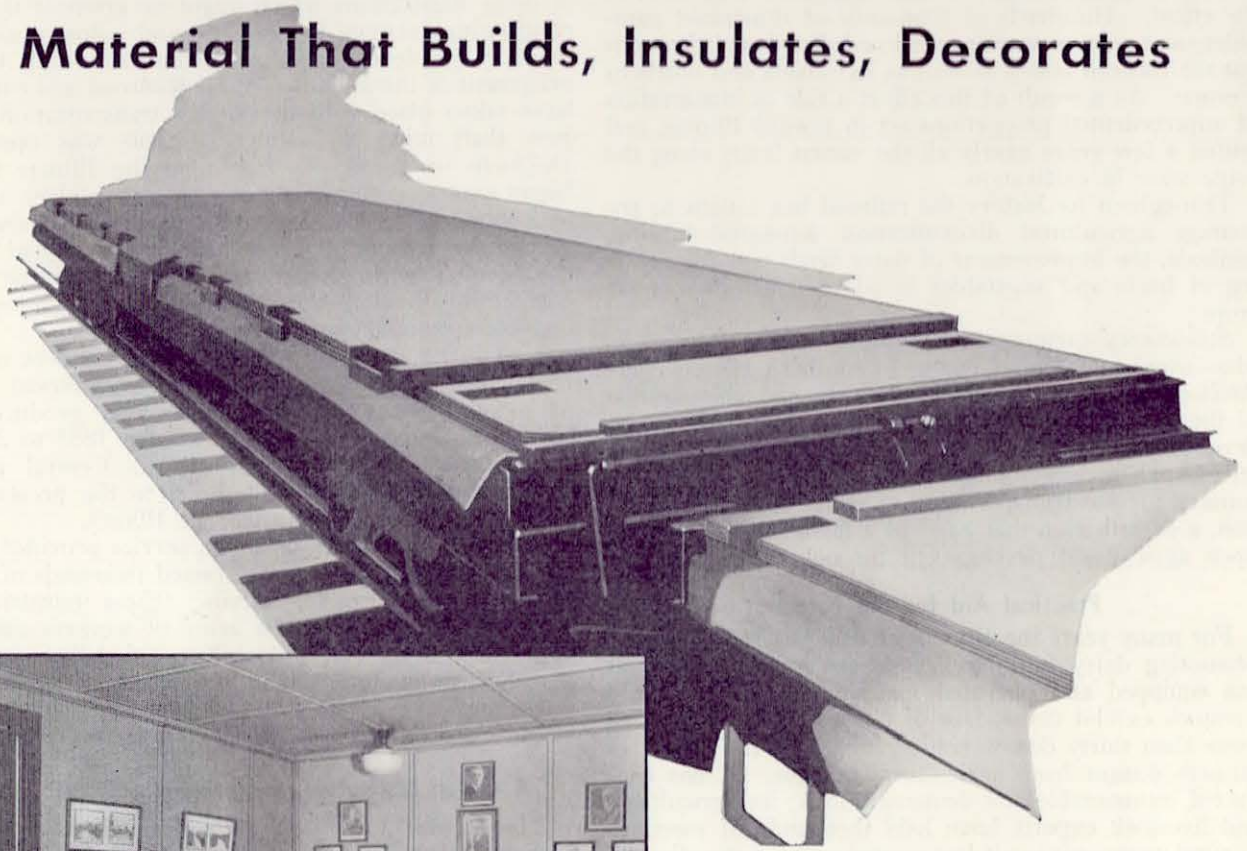
The Illinois Central System's contribution to Mississippi Valley development has not been confined alone to the service it renders as an agency of transportation, vital as that service is. This great transportation servant has also developed into a great industry, providing employment to tens of thousands of workers, paying out ten of millions of dollars annually in wages, spending many millions of dollars annually for fuel, materials and supplies, and paying out still other millions each year in taxes for the support of public schools, for the upkeep of highways and for the support of federal, state and local governments.

Interdependent—no other word describes so well the relation between the Illinois Central and the Mississippi Valley which it serves. Each prospers with the other. That which benefits the one likewise benefits the other.



Rehabilitate with CELOTEX

All Railroads Find Use for This General Purpose Material That Builds, Insulates, Decorates



Showing the application of Celotex in the construction of a refrigerator car—Five layers of one-half inch Celotex for the car bottom.

Walls and ceilings of Celotex in an I. C. station office, Randolph St., Chicago, Ill.

As a manufacturer whose products the railways need, and will buy when their earnings permit, The Celotex Company endorses the program of National Recovery through Railway Recovery.

Opening the way to increased railway earnings and purchases will mean increased business activity and increased employment throughout the country.

Wherever and whenever the program permits rehabilitation—repairing, remodeling, refinishing, as well as the erection of new structures—every railroad needs Celotex.

This easily handled and economical cane fibre board is a general purpose building material of exceptional usefulness in almost every type of railroad building.

It builds; it insulates; and, as an interior finish for walls and ceilings, old or new, it also decorates.

In refinishing with Celotex the boards are applied directly to the old walls. The natural buff finish of the board provides an attractive appearance and no other decorative aid is necessary; but Celotex may be painted, beveled or grooved if desired.

Celotex for refrigerator car insulation—Celotex for sheathing—Celotex for plaster base—Acousti-Celotex Sound-Absorbing Tiles to subdue noise—these are some of the many applications of Celotex products in the railway field.

No other insulating building material offers all the advantages Celotex assures. Ask for Celotex and be sure it is Celotex you get.

Termite Protection—All Celotex Cane Fibre Products are manufactured under the Ferox Process (patented) and therefore effectively resist damage by Fungus Growth, Dry Rot, Termites (White Ants).

THE CELOTEX COMPANY, 919 NO. MICHIGAN AVE., CHICAGO, ILL.

CELOTEX BRAND
INSULATING CANE BOARD
(Reg. U. S. Pat. Off.)

BUILDS • INSULATES • DECORATES

STREAMLINE your communications, too!

TELETYPE

increases speed..decreases costs

Operated just like a typewriter, Teletype transmits printed messages instantly over your road's telegraph or telephone wires. By duplexing or multiplexing, it can transmit from two to eight messages simultaneously on one circuit.

One road's Teletype installation, costing $9,000, saved $12,000 in one year. On another road, Teletype—by increasing wire capacity—saved the cost of an additional 4500 mile circuit. Several roads report savings in time, and the elimination of injury to messengers by moving cars, through the transmission of switch lists over Teletype circuits. On many leading roads, Teletype speeds general message traffic, train announcements, consists, wheel reports and switch lists.

Teletype's power to give you greater speed, greater efficiency and greater economy will prove particularly valuable in the days ahead. Our engineers—experienced in fitting Teletype to railroad needs—will gladly show you how Teletype can help. Write to Teletype Corporation, 1400 Wrightwood Avenue, Chicago, Illinois.

TELETYPE

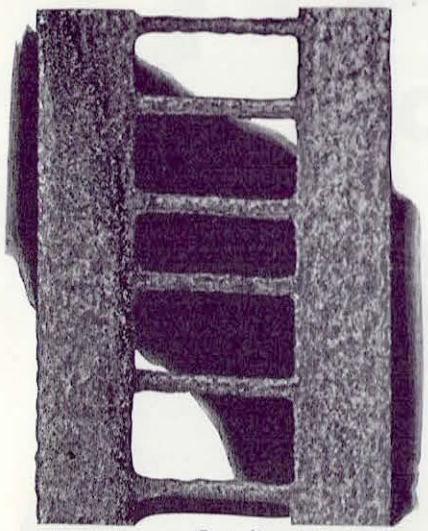
SUBSIDIARY OF

Western Electric Company

UNARCO RAILROAD SPECIALTIES

and Railroad Purchasing Power

THE Union Asbestos & Rubber Co., long identified with the railway supply business, has reason to know what railroad purchasing power means to industrial activity of all kinds. Any action which will have the effect of increasing railway earnings and purchasing power will stimulate activity and increase employment in industry. We know that this will be true in our case, because we manufacture products which are needed by all railways and which will be bought in greater quantities as railway purchasing power increases.



(Patented)

Unarco *Front End Gasket Tape*

A Radical Improvement—Air Tight—
Quickly Applied—Double Sealed Joint

Seal the front end joint of any locomotive against air leakage in a practical, satisfactory and economical manner by using the new Unarco front end gasket tape. Two solidly woven asbestos strips joined by asbestos ligaments—all woven as one piece—provide a double air tight seal around the front. Tape is slipped over front end and joined at ends, joint ends providing an absolute type joint. Front can be removed and replaced without injury to tape. Furnished in 100 ft. rolls—sample on request.

Unarco *Packings*

Built to Railroad Specifications

These packings are designed especially for the exacting requirements of railroad service, embodying the scientific use and treatment of the finest materials available for the purpose. Every refinement that can provide greater economy, longer life, more certain protection to the moving parts of railroad equipment, is built into Unarco Packings. Only highest grade pure asbestos is used, thorough time-proved and efficient lubrication, to meet every need.

Unarco *Insutape*

A high efficiency pipe insulation now standard on leading railroads. Insutape is ideal for railroad service due to its assured long life, easy application to curved and general locomotive piping, extreme economy and fuel saving, resistance to effects of heat, moisture, vibration and handling. Insutape is the result of years of experience and continuous improvement. Unarco Insutape is fully covered by U. S. Letters Patent and the desirable and necessary features cannot be imitated without infringing.

UNION ASBESTOS & RUBBER CO.
Sales Offices 310 S. Michigan Ave. Chicago.

THE DURABLE GOODS INDUSTRIES

AND THE RAILROADS . . .

"PRIMING THE PUMP" is not enough. It must be continuously supplied from substantial sources.

Recovery and greatly increased employment can come about through a vigorous and sustained upturn in the durable goods industries.

Prosperity can only be hoped for if business is enabled, by increased volume and favorable conditions, to produce earnings.

Through many years railroads have purchased durable goods in substantial volume. A reduction in their purchases is felt immediately throughout industry. Replacement of obsolete and worn-out equipment, and modernization of plant, can best be paid for out of earnings. To increase railway purchases, therefore, railway earnings must be increased. Any obstacles to such increased earnings must be removed.

Such action, at this time, would unlock the door to renewed prosperity in the railway equipment industry directly, in numerous allied industries indirectly, and hence in the entire durable goods field, which is admittedly the keystone of national prosperity.

LOCOMOTIVE FEEDWATER HEATERS

STATIONARY FEEDWATER HEATERS

REFRIGERATION EQUIPMENT

AIR COMPRESSORS

ROCK DRILLS AND AIR TOOLS

CENTRIFUGAL PUMPS

STEAM PUMPS

POWER PUMPS

DEEP WELL PUMPS

STEAM CONDENSERS

DIESEL ENGINES

GAS ENGINES

V-BELT DRIVES

LIQUID METERS

W. A. Beaver
President

WORTHINGTON PUMP AND MACHINERY CORPORATION

General Offices: **HARRISON, NEW JERSEY** - *Branch Offices or Representatives in Principal Cities throughout the World*

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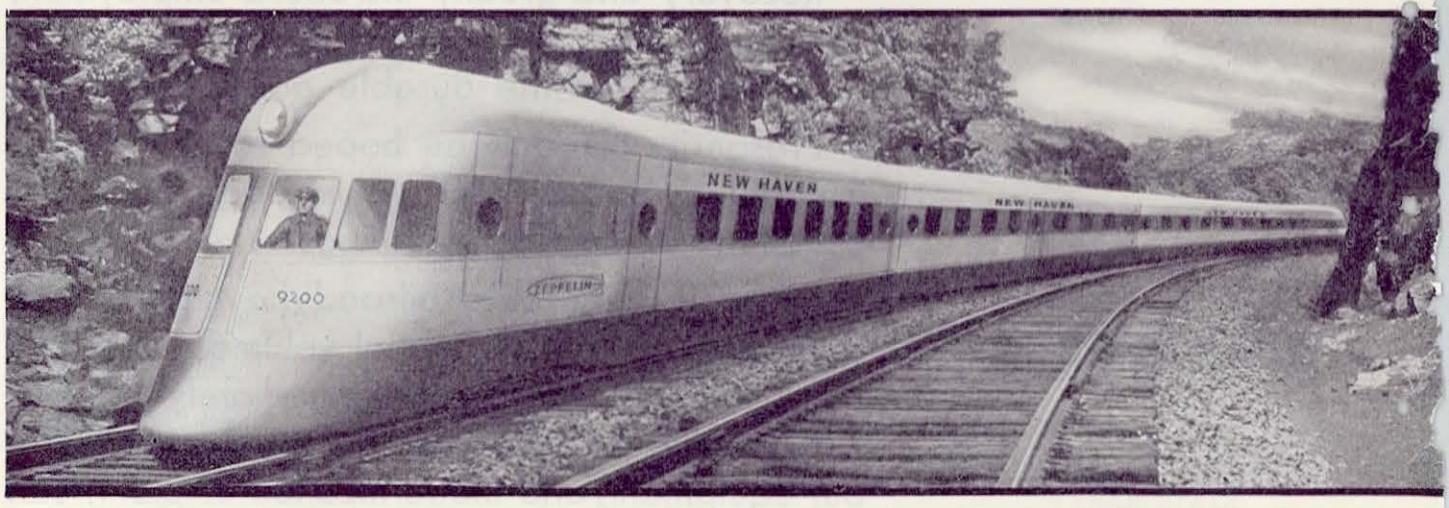
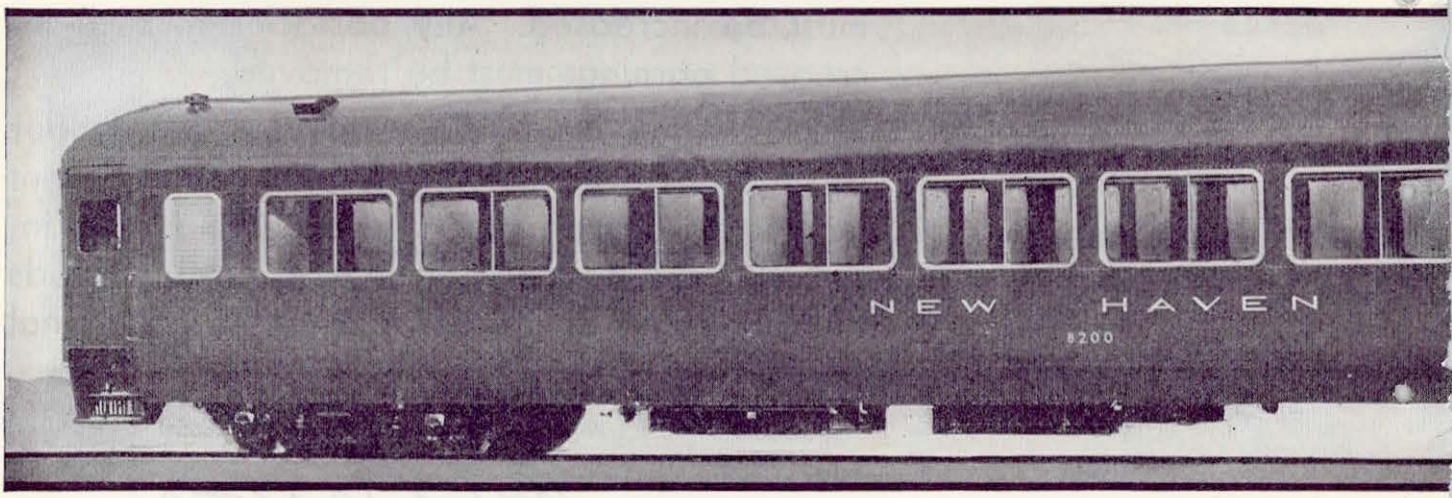
WORTHINGTON

ATLANTA BOSTON BUFFALO CHICAGO CINCINNATI CLEVELAND DALLAS DENVER DETROIT EL PASO HOUSTON KANSAS CITY LOS ANGELES NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH ST. LOUIS ST. PAUL SAN FRANCISCO SEATTLE TULSA WASHINGTON

The NEW HAVEN to A NEW DAY I



The ultra-streamlined train, soon to be delivered to the New Haven Railroad. It is a three-car articulated train, 208 feet in length, seating 160 passengers and weighing only 250,000 pounds. It is driven by two 400 h.p. Diesel engines one located in each end—the first of this type to be built. BELOW: The new streamlined, air-conditioned day-coaches designed by Walter Dorwin Teague, soon to go into regular through service. Note the tubular construction.



The New York New Haven and Hartford Railroad Co.

THE NEW HAVEN LOOKS FORWARD TO A NEW DAY IN TRANSPORTATION

A new day is breaking for the railroads of America. And when it dawns, the New Haven will be found ready! . . . looking eagerly ahead, with new equipment and a new viewpoint on the railway problems of today.

Almost ready to roll out of the shops, fifty new streamlined day coaches of a unique advanced design will soon bring to New Haven trains on the Shore Line "boulevard of steel" between New York and Boston and between New York and Springfield a degree of comfort and convenience never before attained on any regular day-train service.

Soon to follow them is a completely streamlined, articulated train representing the latest improvement in railway engineering.

These two innovations will supplement the New Haven's already highly-organized service. They will add lustre to the fleet of through de-luxe passenger trains —led by one of the premier trains of America, the "Yankee Clipper", running between New York and Boston in 4¾ hours.

looks forward

TRANSPORTATION..

HOWARD S. PALMER
PRESIDENT

The New York New Haven and Hartford RAILROAD COMPANY

ADDRESS REPLY
NEW HAVEN, CONN.

November 26, 1934.

The New Haven Railroad recognizes and assumes its responsibility to commerce, industry and the public to provide at all times dependable and economical transportation.

The New Haven is further improving its service and desires to increase its purchases from industry to the extent that its resources and business judgment will permit.

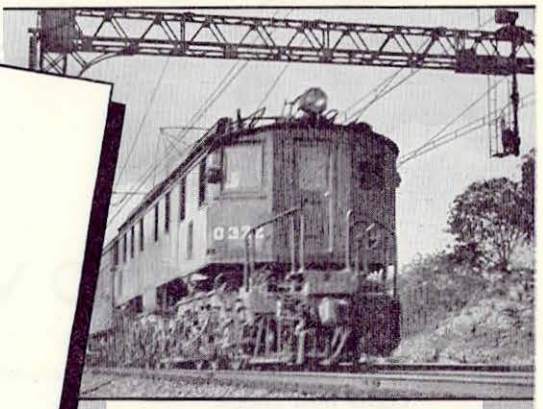
As an operator of large fleets of highway motor vehicles and steamships, as well as a railroad property, the management of this company recognizes the merits of each.

Knowing all forms of transportation requirements so well, it is fully aware of the wide discrepancy in the treatment of the various transportation agencies at the hands of the State and Federal Governments and is heartily in favor of equality in their regulation.

The New Haven's recent purchases, consisting of a streamline train, fifty streamline passenger coaches, and streamline motor coaches for its highway subsidiaries, are all indicative of the steps the New Haven is taking to modernize its service to meet present and future transportation requirements.

The New Haven looks forward to a new day in transportation.

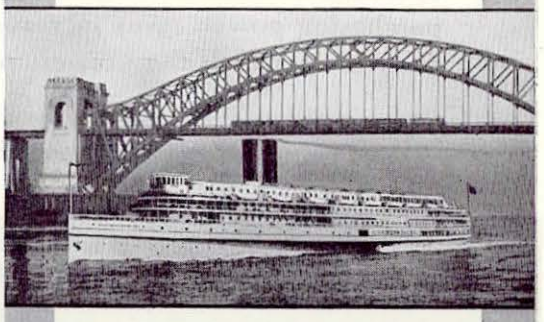
H S Palmer



The "Yankee Clipper", under high speed electric locomotive power.

Motor trucks such as this facilitate prompt handling of freight shipments.

Streamlining in motor coaches too! One of the new fleet of the New England Transportation Co., a "New Haven" subsidiary.



Steamer "Commonwealth" of the New England Steamship Co., passing under Hell Gate Bridge.

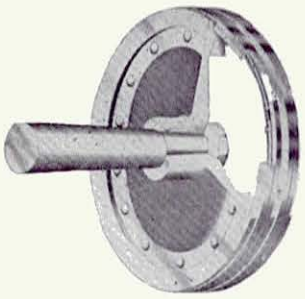
Together with subsidiary water routes and motor coach lines, the New Haven is ready for all passenger traffic demands in Southern New England!

The New Haven is ready, too, for new demands in freight transportation, with a well coordinated system of rail, highway and water services. Fast freight service is operated on "passenger train" schedules—Motor trucks of its highway subsidiary further facilitate prompt handling of L.C.L. shipments—Steamships on Long Island Sound provide overnight service between New York and Southern New England points.

The New Haven salutes the future!

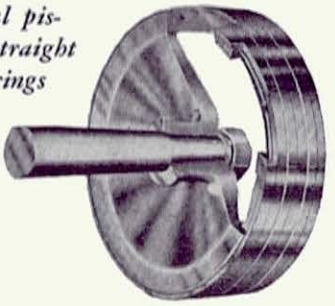
DON'T EXPERIMENT

UNIVERSALS ARE A PROVEN SUCCESS



One piece light weight piston with Universal bull rings

Conventional piston with straight Universal rings



ADVANTAGES

1. 90% reduction in cost of renewals of rigid bull rings.
2. Approximately 50% reduction in reciprocating weight of piston which simplifies counterbalancing.
3. The piston is only a first cost, replacements are confined to rings.
4. Elimination of failures or delays due to rigid bull ring assembly — loose rivets.
5. Simplified reclamation of used rings as contrasted with building up or renewing rigid bull rings.

1. It results in three or four times the mileage of a one-piece ring.
2. On account of decreased friction the cylinder wear is greatly reduced. With bronze rings the cylinder wear is virtually eliminated.
3. Being flexible it readily conforms to worn and out-of-round cylinders.
4. It is so much more nearly steam tight that it improves the lubrication of the engine resulting in increased life of pistons and cylinder bushings.
5. The Universal is the only sectional ring in which the spring expander acts both as an expander and as a lock to prevent worn ring segments from going out the stack.

DON'T EXPERIMENT

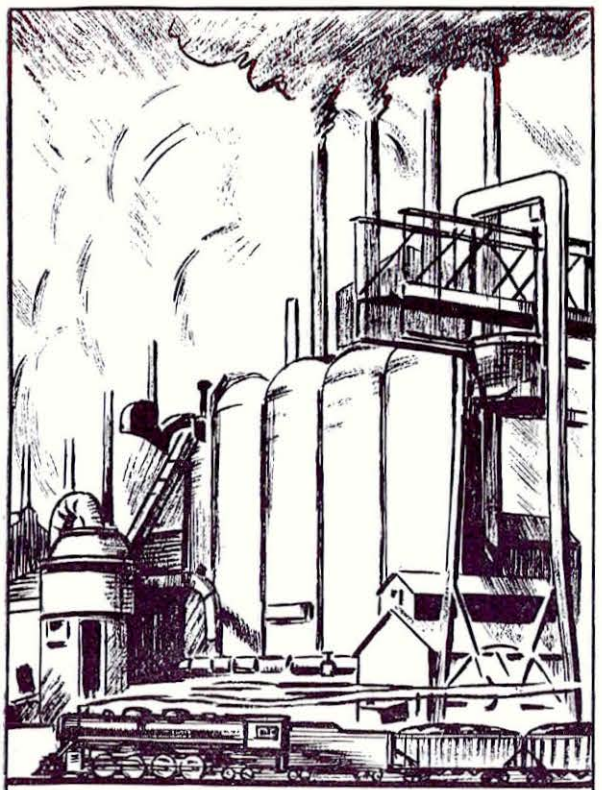
Don't experiment further with the railroads. Give them such measures as will enable them to compete on an equal basis with other means of transportation. Their present overhead of taxes and regulations hamper their further development and curtail their purchasing power. Any increase in this power will help stimulate capital goods industries in which the greatest percentage of unemployment now lies.

We have been making wear resistant ring packings for the past sixty-two years.

THE LOCOMOTIVE FINISHED MATERIAL CO.

ATCHISON, KANSAS NEW YORK CITY CHICAGO, ILLINOIS

RAILWAY PURCHASING POWER—A Vital Link That Must Be Restored



FOR STAYBOLTS

For many, many years the Ewald Iron Company has sold staybolt iron to American Railways. Time and experience have conclusively demonstrated that for such severe and exacting service, the best material it is possible to secure is by far the cheapest in the long run.

This iron is soft, ductile and tough—a standard on many of America's leading railways.

In Use Since 1844

THE railways—the durable goods manufacturers and the *heavy industries* producing raw ferrous products, are the links of a chain which, in better times, sustains the prosperity of our entire business structure.

Thus—when railway orders for finished iron are received in normal volume by the Ewald Iron Company, and by similar durable goods manufacturers—raw material in the form of pig iron must be obtained. The pig iron producer in turn must secure iron ore, limestone, coke, coal, etc.—mines, quarries, and coke ovens resume operations—blast furnaces are blown in—power plants come to life—ponderous machinery is restored to service—all of which requires vast quantities of incidental supplies—with the re-employment of men by hundreds of thousands, to the indirect benefit of millions.

Railways are now *merely existing* under an intolerable burden of governmental restrictions—excessive taxation—and grossly unfair competition. These conditions threaten a general demoralization of our traffic handling agencies throughout the United States.

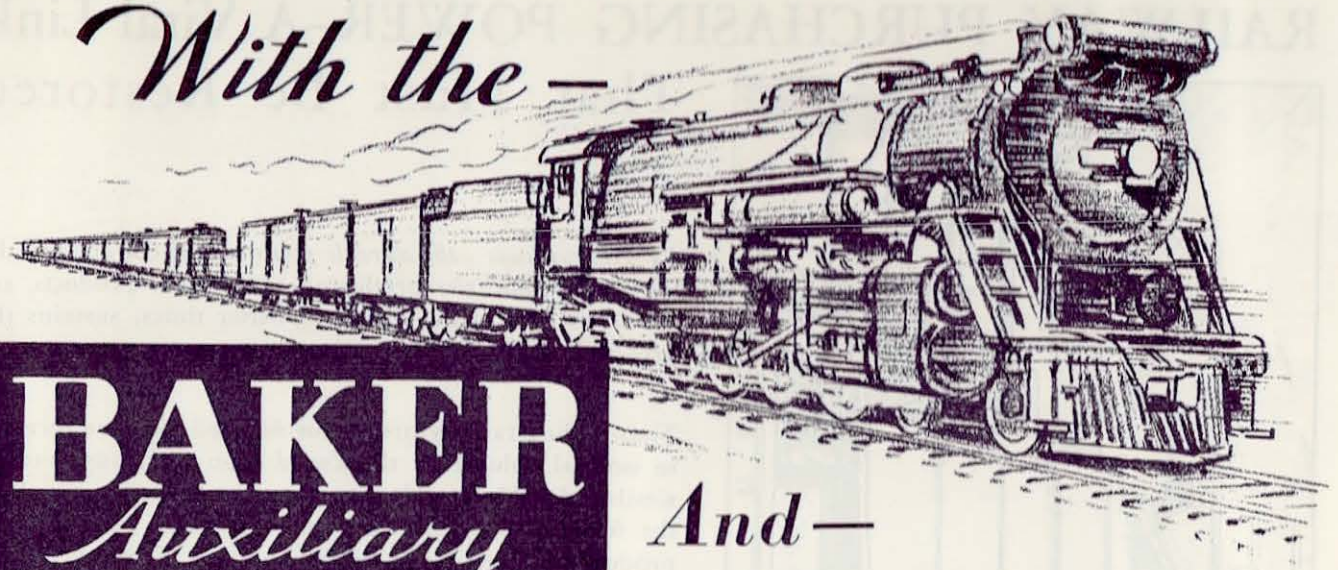
Congress is urged to formulate a comprehensive national transportation policy which will not favor one form of carrier as against another, but will seek to place all as nearly as possible on the same competitive plane—*to the end that those transport agencies which demonstrate the greatest efficiency shall survive.*

The Ewald Iron Company confidently believes that every railway management is willing to abide by the result of such a policy—and that no other action Congress can take will exert a more immediate, or a more profoundly favorable effect on the business activities of this nation.

EWALD IRON COMPANY
LOUISVILLE

CHICAGO NEW YORK ST. PAUL

With the—



BAKER *Auxiliary* VALVE GEAR

And—

Remedial Legislation Railroads Will Break All Records for Service and Economical Transportation

THE entire contents of this issue are devoted to the presentation of facts and statistics which prove that the recovery of the nation demands the restoration of normal railway expenditures.

Hundreds of pages—advertising and editorial, cover thoroughly the problems of the railroads and the disastrous effect of their reduced earning power on American industry and labor.

The necessity for remedial legislation is not only evident but imperative. The nation cannot afford to lose its largest single taxpayer—its largest employer of labor and its largest single consumer of raw materials.

In spite of the depression, railroads have been constantly progressing. Service is improving daily—rates and fares are steadily declining.

Restoration of railway earnings will provide the means for the purchase of new equipment, modern facilities and scientific devices which will greatly improve the service and reduce the cost of operation.

PILLIOD engineers have been working for several years on a *new control of locomotive valve events* which is destined to play a big part in the future of the railway industry.

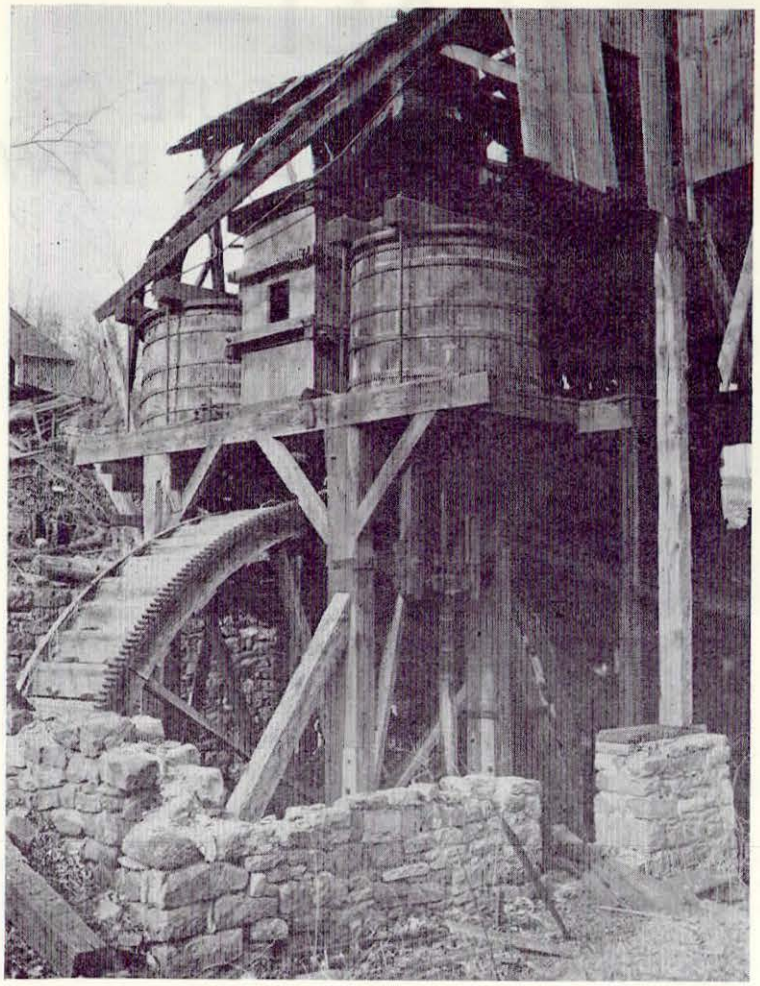
This new device, the Baker Auxiliary Valve Gear, will help the railroads to establish new records for locomotive efficiency and low fuel consumption.

The BAKER Auxiliary Valve Gear offers increased starting power—increased acceleration, increased power at short cutoffs and 10 to 13% coal saving. It can be applied for a low cost to old power as well as new locomotives. Complete details with performance data available to all who may be interested.

THE PILLIOD COMPANY

VALVE GEAR SPECIALISTS

NEW YORK, N. Y. SWANTON, OHIO CHICAGO, ILL.



Before the "Iron Horse" and Behind It Ever Since

WAY back in 1770, Mark Bird, son of William Bird, (founder of Birdsboro in 1740) erected a small iron furnace in the outskirts of the village which retains the honor of having cast cannon for Washington's army.

This small furnace with a capacity of about five tons of pig metal per day was the forerunner of the BIRDSBORO STEEL FOUNDRY AND MACHINE COMPANY, one of the nation's oldest and largest producers of heavy steel castings for all types of locomotives, cars, machine tools and plant equipment.

The BIRDSBORO industry has been closely allied with the railways since the earliest days of their history. Together, they have marched side by side along the road of progress in behalf of the nation and its industrial development. Both are naturally affected by the unfair conditions now existing in the transportation industry.

In normal times the BIRDSBORO industry employs about 800 persons whose salaries constitute practically the entire support of the community.

Reduction of railway purchases has compelled the BIRDSBORO industry to make drastic reductions in its personnel and expenditures. It is but another example of the vital part played by the railroads in the normal production of durable goods.

Remedial legislation and equal regulation of all carriers will iron out the major transportation problems, restore railway earnings and revive the basic industries which are and always will be the greatest contributing factor to our national prosperity.

BIRDSBORO
STEEL FOUNDRY AND MACHINE COMPANY
DESIGNERS AND BUILDERS
BIRDSBORO, PENNSYLVANIA

"All Aboard" for Florida

C & E I—
ROUTE OF TH
BETWEE

FOR more than fifty years the C & E I has operated through passenger trains, in conjunction with its southern connections, from Chicago to the Southeast, and since the year 1902 it has operated through trains from Chicago to Florida.

It was the pioneer Chicago railroad in establishing this through service. As such, the C & E I has felt it incumbent upon it to maintain the highest reputation for safety and service.

The best evidence of its success in maintaining such a reputation is the public patronage accorded this justly famous route, which has made it possible for the C & E I to operate a larger daily fleet of high-class through trains between Chicago and the Southeast than any other Chicago road and on which a greater volume of passenger travel is handled annually than on any competitive line.

Constant Improvements Made

Being the first in the chosen field does not, alone, entitle one to such a reputation and is only partially responsible for the present rank of the C & E I. To enable it to rank first during all the years it has operated these through trains, it has progressively advanced in the development and improvement of its facilities, always with but one thought in mind—safety and service to the public.

The C & E I was the first railroad in the United States to install the automatic train control. Its entire mileage over which these through trains are operated is protected by automatic block signals. Other improvements installed for the sole purpose of enabling it to serve the public safely and expeditiously have consisted of the construction of double and triple main tracks, construction of permanent bridges and laying of heavier rail and track fastenings.

Naturally, such famous and popular trains could only be made so by keeping abreast of the times with modern equipment. All conveniences known to the traveling public are available on these through trains.

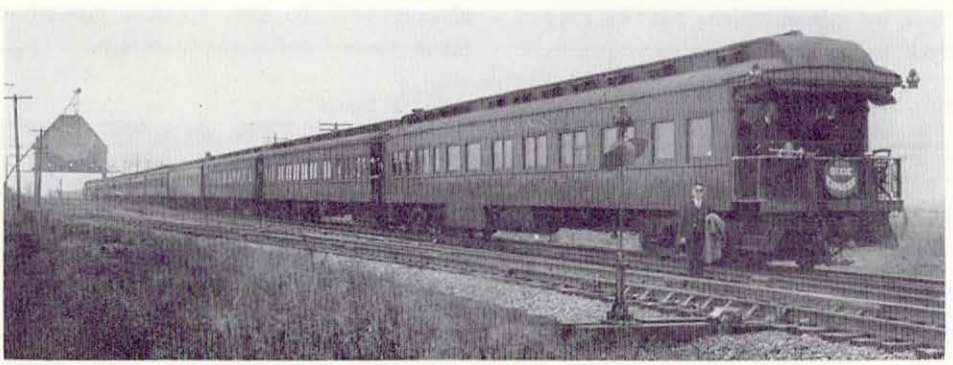
Chicago-St. Louis Service

While the C & E I is probably best known by the traveling public for its many years of successful operation of the DIXIE fleet of trains, it has for years likewise enjoyed a substantial patronage of its Chicago-St. Louis service. The schedules of these trains are equal to those of other competing lines, the trains are air-conditioned throughout and the equipment is otherwise modern in all respects.

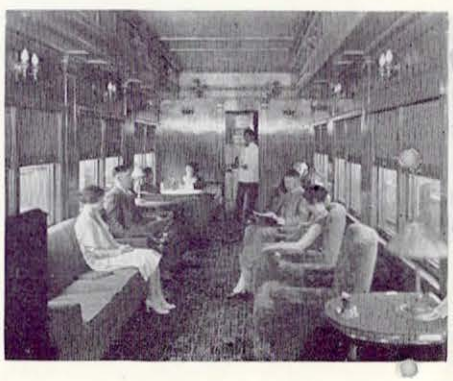
Essential to Illinois and Indiana

This railroad is proud of the position it holds today as the principal passenger line between Chicago and the Southeast, also of its standing as a Chicago-St. Louis

One of the Four Famous Dixie Trains



Luxurious C & E I Lounge Car



AMOUS DIXIE FLEET OF TRAINS HICAGO AND THE SOUTHEAST

4 famous Trains

DIXIE *LIMITED*

DIXIE *FLYER*

DIXIE *EXPRESS*

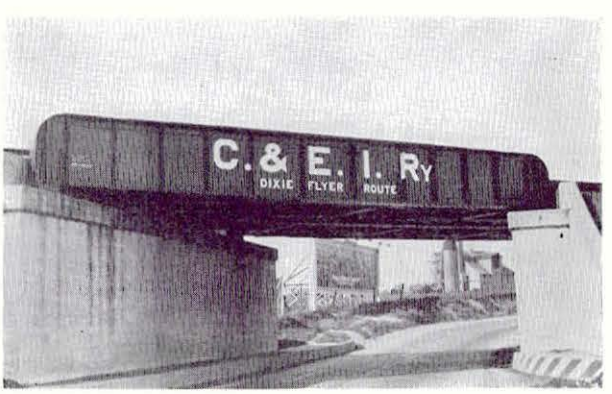
DIXIE *MAIL*

passenger line. It is proud also of the position which it occupies in the States of Illinois and Indiana, serving as it does the richest grain producing areas, the principal bituminous coal fields and many of the outstanding industrial centers of these two States.

With the thought always uppermost that agricultural, mining and industrial communities prosper in direct relationship to the type of transportation facilities, both freight and passenger, available to them, the efforts of the C & E I have always been to provide transportation service which would afford the communities which it serves the greatest opportunity for growth and prosperity. This effort to ably serve has been maintained at constantly increasing efficiency despite the obstacles which have beset the C & E I, as well as other railroads, throughout the present economic depression.

We have every reason to believe that the people of Illinois and Indiana are appreciative not only of our successful efforts to serve them efficiently but for our substantial financial support through the payment of large sums annually for taxes, for wages to employes and for the purchase of materials. The aggregate annual disbursement for these three items alone is currently in excess of ten million dollars.

Typical Section of Triple Main Track

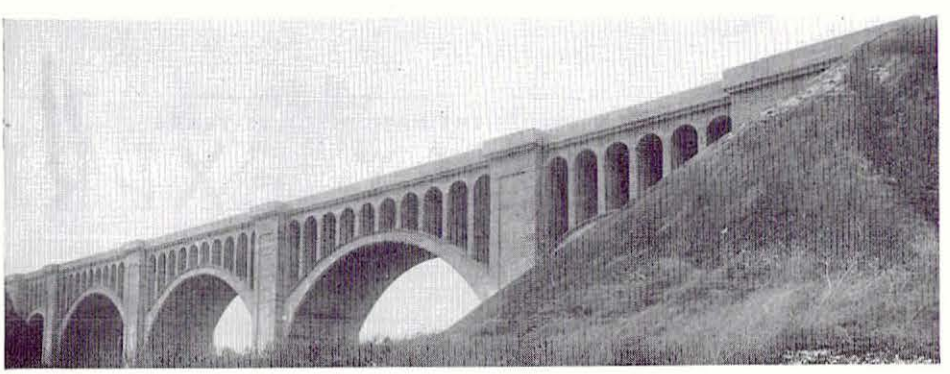


Above—Grade Separation on Dixie Highway

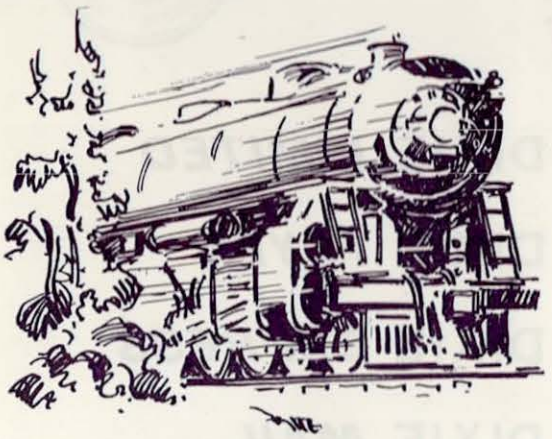
Chicago & Eastern Illinois Ry.

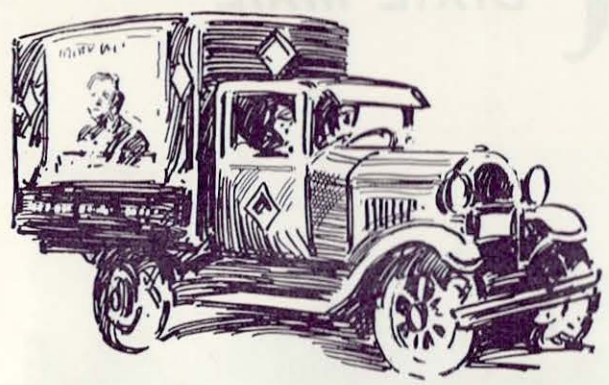
Inviting C & E I Dining Car

Below—Double-Track Okaw River Viaduct



Complete Transportation





With Dependable Service A Vital Necessity . . .

MORE than 50,000 skilled employees — carefully trained to give the public "The Best There is in Transportation" — ready to answer the call of duty at any moment — day or night — winter or summer — constitute the Railway Express Agency, Inc. — A smooth-working organization which fully exemplifies the efficiency, dependability and economy of completely co-ordinated transportation service.

Every day Railway Express serves industries and individuals, farmers and factories at 23,000 different points throughout the United States. By the systematic and skillful utilization of all traffic carriers — whether railway — highway — waterway or airway — this company seeks to move goods by the most economical and quickest routes — to the end that a thoroughly complete and efficient means for the handling of express traffic will be available to the public all times.

As the owner and operator of some 9,000 motor trucks moving on public thoroughfares and highways, the Railway Express organization confidently believes that the existing haphazard and chaotic condition of highway transport in the United States is a major influence in retarding business recovery and that it works to the disadvantage of all forms of transportation and the public generally quite as much as it does to that of the railroads.

There is no type of business enterprise, the welfare of which is not profoundly affected by the quality and economy of transportation service available. Here is a field where order, consistency and justice are absolutely vital to public well-being — and right now at a time when the whole economic structure are subjected to strains and stresses that have rarely been equalled — public well-being requires that the situation be dealt with definitely and constructively by our state and national legislatures without further delay.

The American public — no less than the transportation agencies themselves need a new national transportation policy wherein order, consistency and justice to all carriers will predominate to the exclusion of existing social waste and chaos.

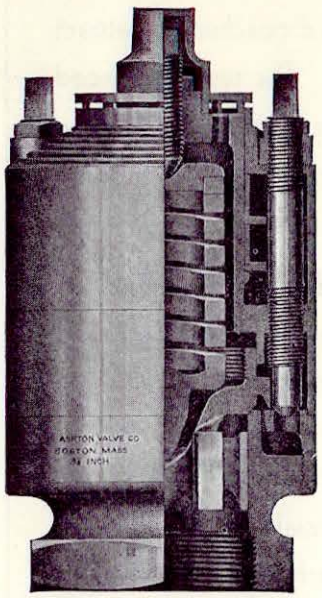
SERVING
THE NATION FOR 95 YEARS

RAILWAY EXPRESS AGENCY INC.

NATION-WIDE RAIL-AIR SERVICE

Big PURCHASES of DURABLE GOODS

Will Revive Prosperity



Reliable and Popular Ashton Locomotive Safety Valve—its long life and dependable service contribute greatly to economy of operation.

RIGHT now, after five years of retrenchment —BILLIONS OF DOLLARS—could be profitably expended by the railways in the purchase of durable goods.

Ashton Safety Valves and Gages are appliances of outstanding and widely recognized merit in railway service. They are among the durable goods which railways need and will buy in sufficient volume to give employment to millions —just as soon as Congress provides adequate assurance that the day of government discrimination against railway transport is over.

National welfare absolutely depends on immediate congressional action in this matter.

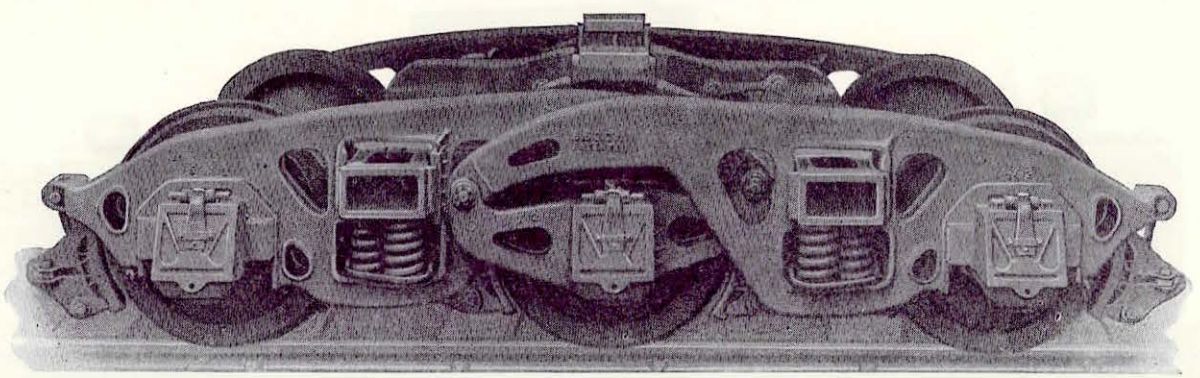
No. 52 D.I.

Ashton Double-Dial Steam Gage No. 52 D.I. Pressure can be read from either side of cab.

THE ASHTON VALVE COMPANY

Boston 161-179 First St., Cambridge
New York 21-23 Albany St.
Chicago 565 W. Washington Street
San Francisco 606 Howard Street

The efficiency of a Locomotive Tender is judged by its maximum Fuel and Water Capacity with a minimum wheel load, and by its cost of maintenance.



Buckeye Six-Wheel Tender Trucks are made from A.R.A. "Grade B" cast steel and compared with other tender trucks of equal axle capacity show an average weight saving of 20%—a desirable reduction of wheel load.

Buckeye Tender Trucks, due to simplified equalization, effecting quick wheel changes, and because all wearing surfaces are protected by manganese steel plates, also show a great saving in operating costs.

During the past five years 240 sets have been placed in service—175 sets on repeat orders by four leading railroads.

THE BUCKEYE STEEL CASTINGS COMPANY

Columbus New York Chicago St. Paul

5889-3

NEW or redecorated coaches will attract passenger traffic. The tested Railroad standards of plush are being produced in colors and designs appropriate for modern decorative schemes.

High speed trains and other new developments require specialized treatment and our experience of many years will be found valuable. We will be pleased to submit colored sketches and fabric suggestions to those officials responsible for the construction of such equipment.

MASSACHUSETTS MOHAIR PLUSH COMPANY

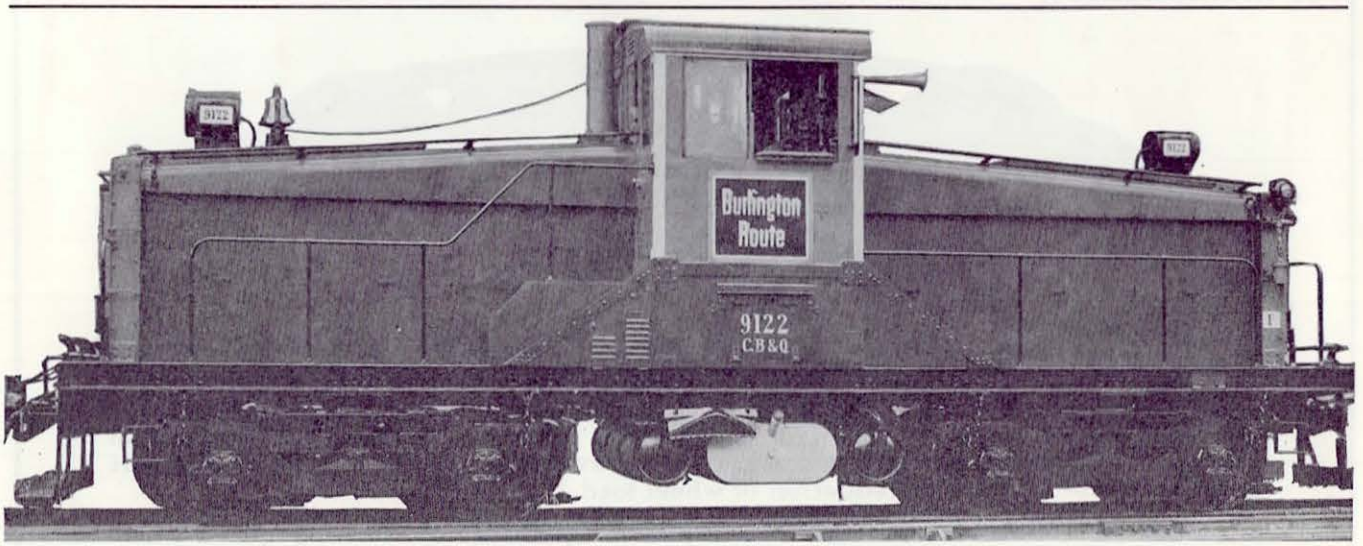
Manufacturers of Railroad Plush for 44 years

80 FEDERAL STREET, BOSTON, MASS.

PHILADELPHIA NEW YORK CHICAGO

MIDWEST DIESEL ELECTRIC LOCOMOTIVES

ONE OF THREE DELIVERED TO THE BURLINGTON



NOW POWERED WITH

WESTINGHOUSE EQUIPMENT

265 H.P. TO 1600 H.P. 35 TONS TO 135 TONS

MIDWEST LOCOMOTIVE WORKS

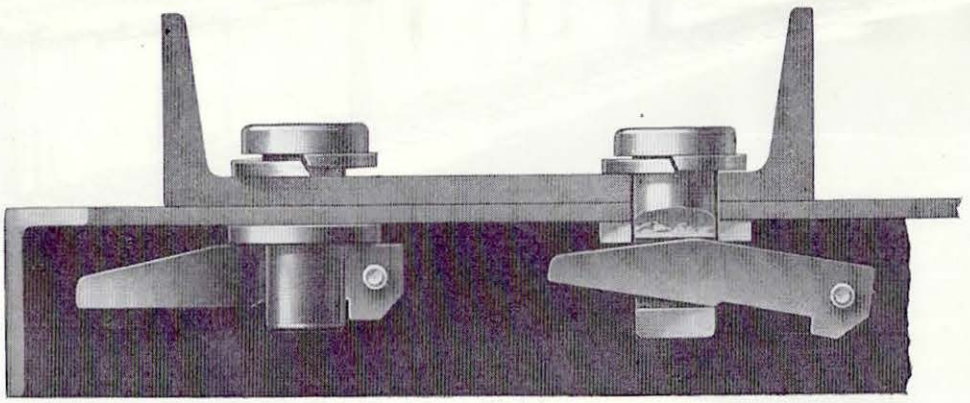
HAMILTON, OHIO

Buffalo Security Fastening for Brake Beam Supports

A SIMPLE and effective means for securing Safety Angles to the Spring Plank.

All shocks and vibrations absorbed by Spring Washer, in tension.

Double Locked Pin.



Split when Applied Application

Brake Beams for all Classes of Railway Equipment

BUFFALO BRAKE BEAM COMPANY

NEW YORK BUFFALO MONTREAL HAMILTON, ONT.

for 38 years

BARBER DEVICES

FURNISHED FOR 1,300,000 FREIGHT CARS

HAVE PAID FOR THEMSELVES

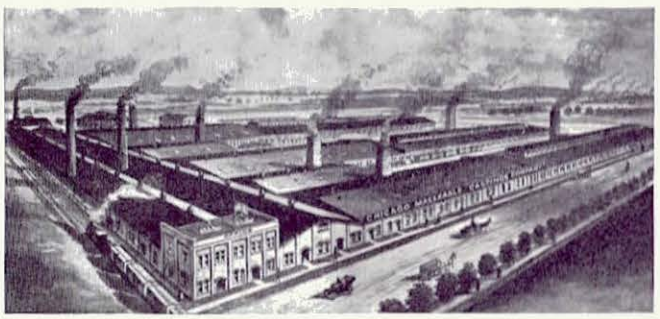
MORE THAN HALF THEIR COST GOES TO LABOR

LATERAL MOTION
ROLLER SIDE BEARINGS
AND
THE NEW STABILIZED TRUCK

STANDARD CAR TRUCK COMPANY

CHICAGO - ILLINOIS

FOR 35 years we have maintained A growing business, so far SUCCESSFUL because of our CODE of business ethics



Birdseye View of Plant

Our constant aim has been to:

Provide customers with worthy products.

Give fair prices and aggressively promote sales.

Maintain an organization of competent men.

Welcome honorable competition.

Make further research with the view of improving our products.

Acknowledge confidence and good will as the chief element of our business.

Legislative action toward increasing railway earnings will be reflected in our business, will enable us to continue in successful operation, and will permit us to put more people to work.

CHICAGO MALLEABLE CASTINGS CO.
ALLIED STEEL CASTINGS CO.

By John T. Llewellyn

President

MANUFACTURERS OF MALLEABLE IRON CASTINGS * STEEL CASTINGS * BRAKE BEAMS AND PARTS

"Every thinking citizen should urge immediate legislative solution of the problems confronting the railroads"

We repeat above a statement made in the December 3, 1932 issue of Railway Age, for today the same problems remain, more acute, and urgently pressing for a solution.

Corning Glass Works

CORNING NEW YORK

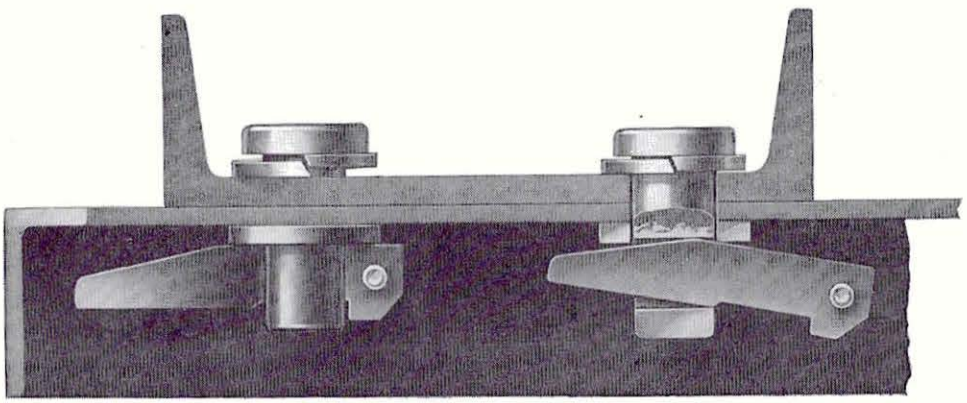
World's largest manufacturer of Technical Glassware

Buffalo Security Fastening for Brake Beam Supports

A SIMPLE and effective means for securing Safety Angles to the Spring Plank.

All shocks and vibrations absorbed by Spring Washer, in tension.

Double Locked Pin.



Split when Applied Application

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BUFFALO BRAKE BEAM COMPANY

NEW YORK BUFFALO MONTREAL HAMILTON, ONT.

for 38 years

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FURNISHED FOR 1,300,000 FREIGHT CARS

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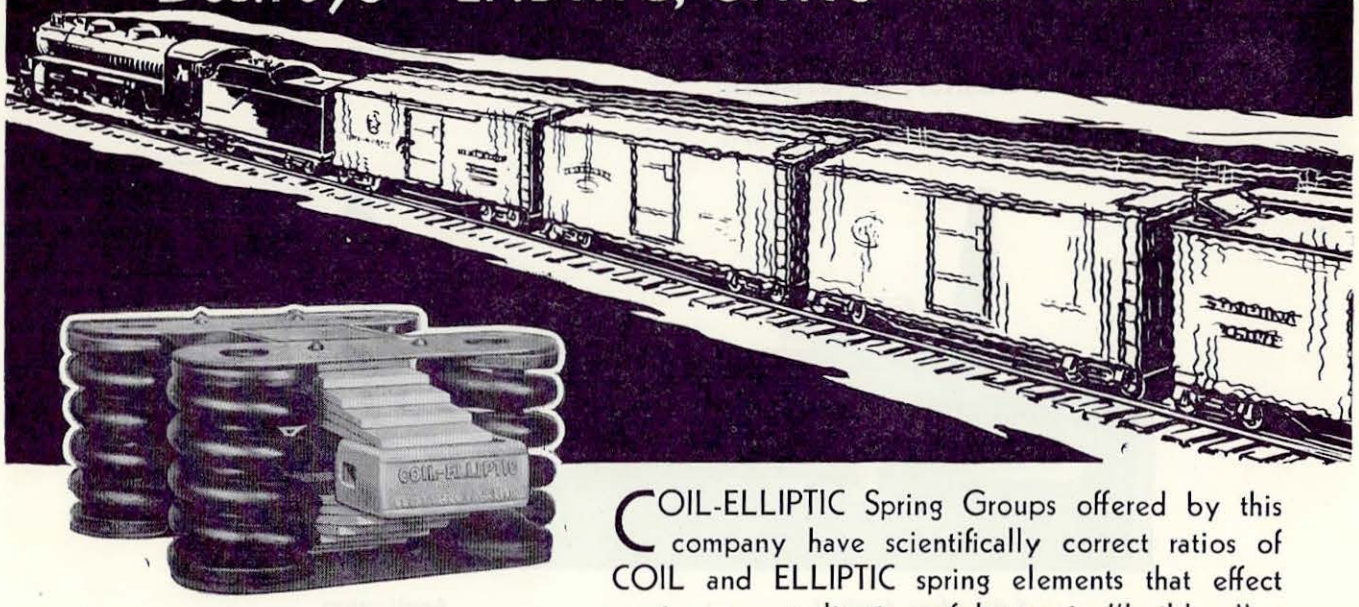
MORE THAN HALF THEIR COST GOES TO LABOR

LATERAL MOTION
ROLLER SIDE BEARINGS
AND
THE NEW STABILIZED TRUCK

STANDARD CAR TRUCK COMPANY

CHICAGO - ILLINOIS

COIL SPRING HARMONIC "BUILD-UP" *Destroys* LADING, CARS *and* TRACK

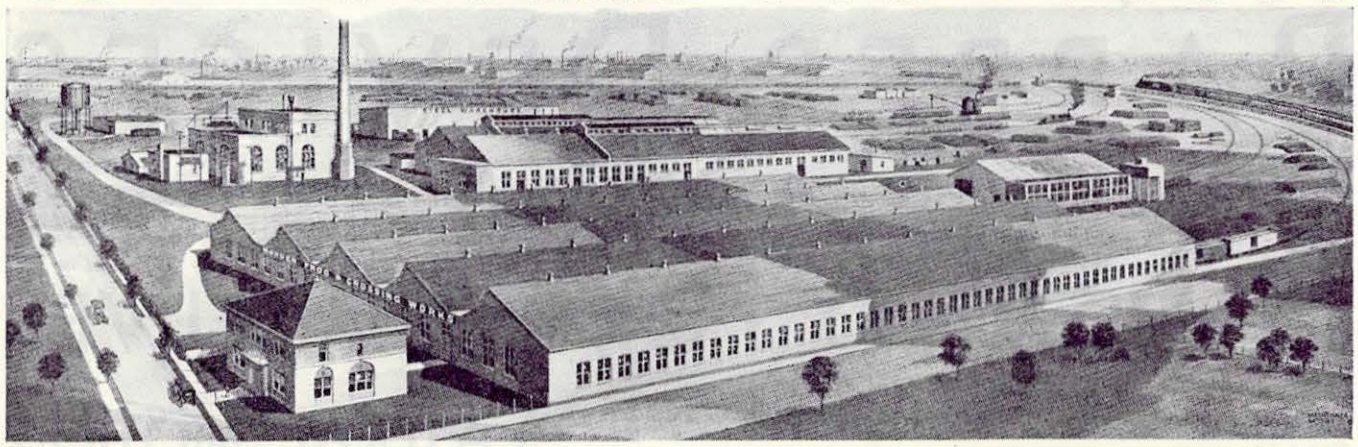


Coil-Elliptic Spring Group for improved Double Truss Trucks.

COIL-ELLIPTIC Spring Groups offered by this company have scientifically correct ratios of COIL and ELLIPTIC spring elements that effect maximum neutralization of harmonic "build-up"—thus eliminating the destructive action of excessive vertical vibrations on lading, cars and track.

PITTSBURGH SPRING & STEEL CO.
PITTSBURGH, PENNA.

WE URGE ACTION!



Any condition affecting the railroad industry has a direct bearing on the prosperity of the nation.

Legislative action is necessary to cut the financial knot that has been strangling the railroads.

Increased railroad earnings will be reflected in increased buying of materials needed to overcome the accumulation of deferred maintenance.

Morden products are needed for they contribute materially to the safety of present day transportation.

We urge action, as we feel it will speed up the prosperity of our nation, enable railroads to increase their buying, promote the welfare of manufacturers of supplies and equipment and enable us to put men back on the job.

MORDEN FROG AND CROSSING WORKS
CHICAGO **ILLINOIS**

IN A NUTSHELL

Good manufacturing facilities, skilled workmen and careful supervision of all operations have combined to make our products unsurpassed for strength, durability and economy.

"Arctic" Bronze Locomotive Crown Bearing—pressure chill cast in Patented Metallic Molds.

"Arctic" No. 36 Bronze Mixture Car Journal Bearing.

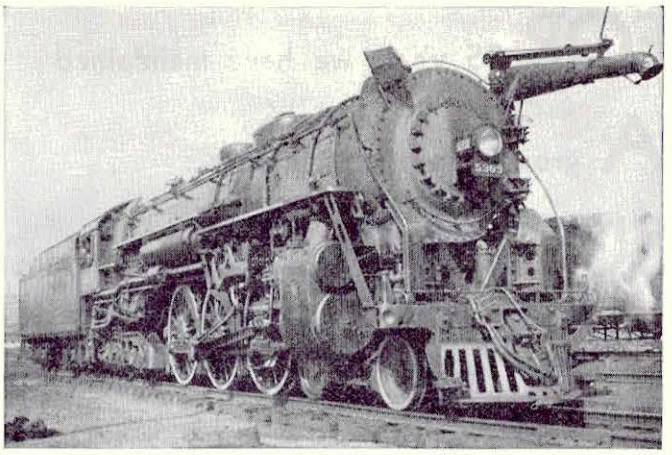
We specialize in reducing maintenance costs for the Railroads.

Full particulars upon request.

NATIONAL BEARING METALS CORPORATION
St. Louis, Mo.

New York, N. Y.
Jersey City, N. J.
St. Paul, Minn.

Pittsburgh, Pa.
Portsmouth, Va.
Meadville, Pa.



NEW YORK CENTRAL LINES EQUIPMENT IS

DeVilbiss Spray-Painted

The New York Central as well as many other important railway systems, uses DeVilbiss Spray-Painting Equipment.

Leading railroad operators appreciate the importance of using modern methods. They know that spray-painting has many advantages over old-fashioned methods of application, and that new and modern DeVilbiss products have many advantages over old-style spray-painting equipment.

DeVilbiss Spray-Painting Equipment is especially designed for the most effective and economical painting of cars, locomotives, structures and buildings. It produces higher quality paint jobs, which improve appearance and provide better protection. And, through faster and more efficient operations, it lowers painting costs.

Ask your local DeVilbiss representative about the latest developments in DeVilbiss Spray-Painting and Canopy Exhaust Equipment. See him now, or write us direct.

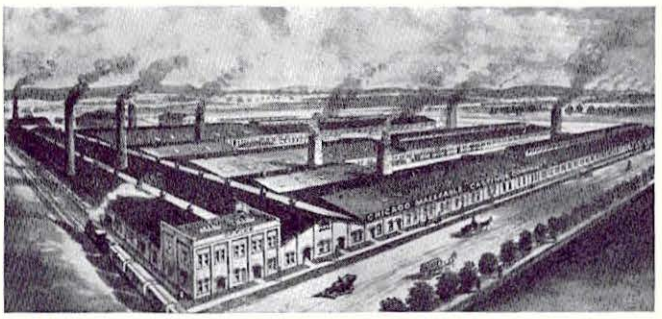
THE DEVILBISS COMPANY · TOLEDO · OHIO

New York Philadelphia Cleveland
Detroit Chicago St. Louis
San Francisco Windsor, Ontario

Direct sales and service representatives available everywhere.

DeVilbiss

FOR 35 years we have maintained A growing business, so far SUCCESSFUL because of our CODE of business ethics



Birdseye View ot Plant

Our constant aim has been to:

Provide customers with worthy products.

Give fair prices and aggressively promote sales.

Maintain an organization of competent men.

Welcome honorable competition.

Make further research with the view of improving our products.

Acknowledge confidence and good will as the chief element of our business.

Legislative action toward increasing railway earnings will be reflected in our business, will enable us to continue in successful operation, and will permit us to put more people to work.

CHICAGO MALLEABLE CASTINGS CO.
ALLIED STEEL CASTINGS CO.

By John T. Llewellyn

President

MANUFACTURERS OF MALLEABLE IRON CASTINGS * STEEL CASTINGS * BRAKE BEAMS AND PARTS

"Every thinking citizen should urge immediate legislative solution of the problems confronting the railroads"

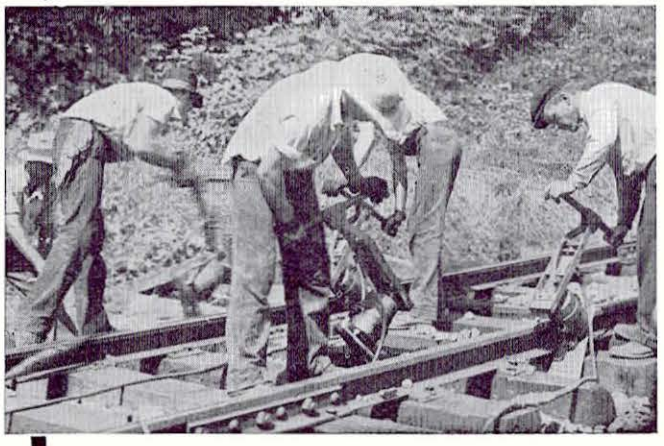
We repeat above a statement made in the December 3, 1932 issue of Railway Age, for today the same problems remain, more acute, and urgently pressing for a solution.

Corning Glass Works

CORNING NEW YORK

World's largest manufacturer of Technical Glassware

PIONEERS



The Railways opened up the vast territory of the United States to trade.

Immediately the durable goods industries profited and a reign of prosperity started that made this Nation the greatest on earth.

These railways, if given the proper opportunity will again open the way to lasting prosperity.

They want to buy, and any increased purchases they make will, as in the past, stimulate the durable goods industry and give us a return of prosperity.

Incidentally, the Electric Tamper and Equipment Company are also pioneers, blazing the way in the development of electric tie-tamping equipment.

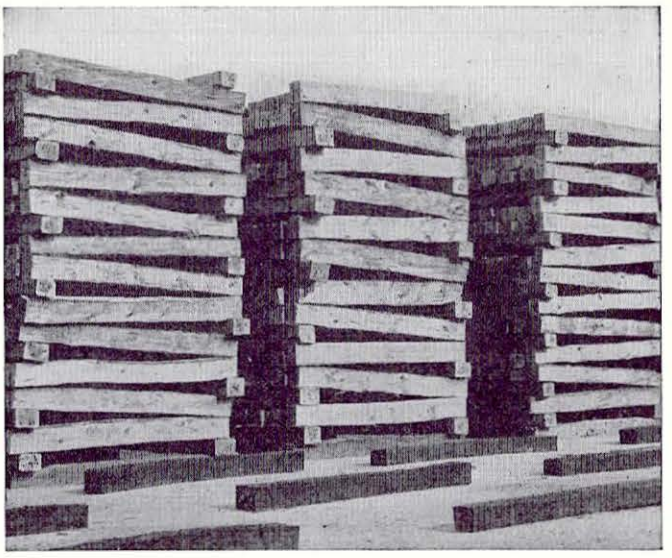
Railways will buy such equipment because of its proven economy as soon as earnings warrant.

We ask our legislators to give attention to those measures which will enable the railways to buy and continue their great work as

PIONEERS

ELECTRIC TAMPER & EQUIPMENT CO.

LUDINGTON MICHIGAN



THOUSANDS OF TIE MAKERS in the SOUTHWEST ARE WAITING FOR TIE PRODUCTION ORDERS

WOOD preserving is a country-wide industry. It is an industry that normally uses 200,000,000 gallons of creosote; 25,000,000 pounds of zinc chloride annually; it is waiting to treat ties and other timber for the railways.

In 1929 the railways used 71,000,000 treated cross ties. Year after year curtailment of this number has been necessary and in 1933 only 22,000,000 treated ties were used—this the smallest quantity reported for any year since 1909 when compilation of these figures was begun. The railroads desire to correct this sub-normal condition.

Wood preservation is more than a railway problem—it is a national problem of vital importance. Fair legislative treatment of all modes of transportation would place our railways in a position to again resume expenditures on a large scale and return thousands to gainful employment.

This dating brand is your assurance that the tie is a standard A.R.E.A. specification tie

3 C 4 The International Dating Brand

Full size
Sound timber
Properly seasoned
Scientifically treated

International

CREOSOTING & CONSTRUCTION CO.

PRODUCERS OF HIGH GRADE TREATED TIES

Galveston - Beaumont - Texarkana

INCREASED
PURCHASING POWER
the Desire of all
RAILWAYS

• • •

INCREASED PURCHASES
By the RAILWAYS
would stimulate
THE DURABLE
GOODS INDUSTRIES

• • •

Such added STIMULUS
is needed to insure
a return of
LASTING PROSPERITY

• • •

FREIGHT CARS
BUILT BY BETTENDORF
and equipped with their
DOUBLE-TRUSS
"COIL-ELLIPTIC" TRUCKS
offer the RAILWAYS
MODERN
DEPENDABLE
DURABLE
ECONOMICAL
EASY-RIDING
ROLLING STOCK
that will SUBSTANTIALLY
REDUCE their
OPERATING and
MAINTENANCE COSTS
and CLAIMS for
DAMAGED LADING

• • •

THE BETTENDORF COMPANY
Bettendorf, Iowa.

NEW DEVICES
Will Increase Efficiency and Reduce Costs . . .

REMEDIAL legislation for the railways will make possible the purchase of modern equipment and devices which will help to increase the efficiency of transportation and reduce operating costs.

Take, for example, ARDCO Railway Devices—their performance proves that they are vitally important factors in modern methods of railway operation.

ARDCO Safety Cylinder Cocks
and
ARDCO Automatic Drifting Valves
insure greater cylinder efficiency, prolong the life of many parts and reduce maintenance costs. Recent improvements in the drifting valves will interest every mechanical officer especially from the standpoint of initial cost.

ARDCO MANUFACTURING CO.
1 Newark Street Hoboken, N. J.

ARDCO Rail and Flange Lubricator
offers unusual savings in rails and wheel flanges.
Sales handled through The Lundie Engineering Corporation.

REGULATION *Of*
All TRANSPORT
Without Prejudice-

is all the railroads need to restore their earning power and purchasing capacity.

The heavy industries must have railway orders to permit of absorbing new labor and to re-establish their activities on a normal basis.

CONGRESS IS URGED to take prompt steps toward the elimination of destructive truck competition and to discontinue nursing water haul ventures which offer little prospect of self support and do much toward increasing railway distress.

PROLIFIC UNCONTROLLED WEED GROWTH is as destructive to railway roadbeds as uncontrolled interstate transport is to national welfare.

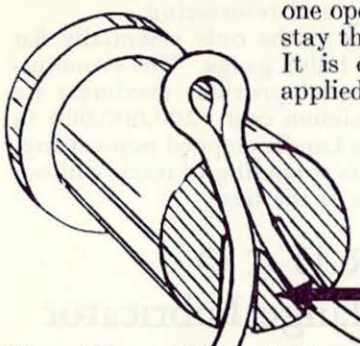
READE MANUFACTURING CO.
WEED KILLING CHEMICALS AND SERVICE
JERSEY CITY CHICAGO

For Maximum Safety at All Speeds on All Types of Railroad Equipment

WHY take chances with ordinary cotters—especially since the speeds of all trains have been increased?

Every application on a car, locomotive or any other moving vehicle can be made in absolute safety with the COOKE Pin and Cotter.

A couple of taps with a hammer drives the COOKE Cotter into place. It is securely locked in one operation—and it will stay there until removed. It is easily and quickly applied. You save time, money and promote maximum safety.



Note: This wedge opens, spreads and locks the cotter, thereby eliminating vibration and wear.

COOKE PIN and COTTER

"SELF OPENING—SELF LOCKING"

American Railway Products Co.

74 WASHINGTON ST., SOUTH NORWALK, CONN.

"HERC" IS OUT AFTER HIS QUOTA OF TRADE!

—with a complete line of Portable Pneumatic and High Frequency Electric Grinders — Drills — Buffers — Sanders — Polishers — Screwdrivers — Nut Runners.

The Hercules name and trademark, symbol of power and endurance, is well known to thousands of workmen in hundreds of railway shops all over the country.

We Want to Sell, as The Railways Wish to Buy—and We'll Do Our Part to Hasten Railway Recovery as Well as National! . . .

Many businesses are already on the way to recovery. Our own isn't bad! But we know "big stick" methods cannot beat real business out of the railroads until they recover, in due part, their proper status in this industrial scheme of things . . . In the meantime we shall be happy to be of service in any way. . . .

THE BUCKEYE PORTABLE TOOL CO. DAYTON, OHIO — HERCULES

Crapo GALVANIZED PRODUCTS

Tried and Proved in Actual Service

Crapo Galvanized Wire and Strand have earned their reputation for long life and low maintenance cost by actual performance on the "firing line."

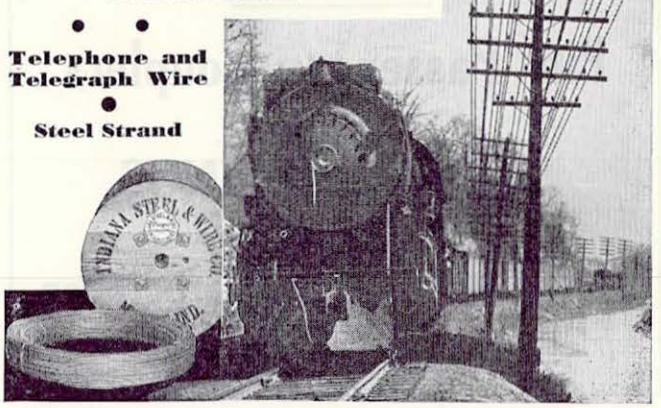
The *pure zinc* galvanizing, thoroughly bonded to the wire, has proved its ability to resist corrosion under the most adverse conditions and long after other coatings have failed.

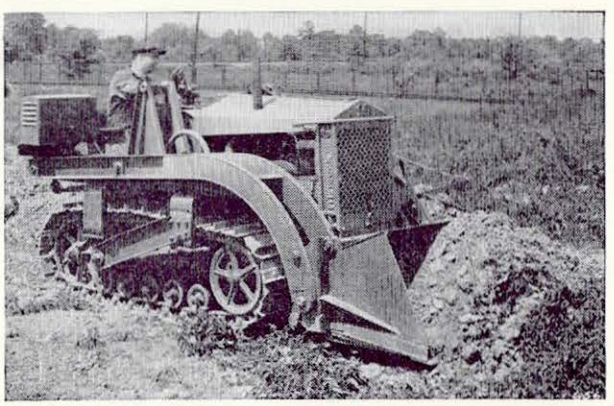
Specify genuine *Crapo* Galvanized Wire and Strand—for greater dependability!

Indiana Steel & Wire Company
Muncie, Indiana

Telephone and Telegraph Wire

Steel Strand





CLETRAC TRACTORS

for mounting and driving maintenance of way equipment

Cletrac "off-track" crawler units are proven money savers. Self-propelled, they keep clear of track, eliminate delays and the cost of moving machines, pipe lines and cables. Interchangeable mountings insure "year 'round" usefulness. Write for performance records, costs and data on tractor mounted:

AIR COMPRESSORS
BULLDOZERS
CRANES
WINCHES

Cletrac CRAWLER TRACTORS

WELDERS
DITCHERS
LOADERS
POST HOLE DIGGERS

THE CLEVELAND TRACTOR CO.
Cleveland, Ohio

A. R. A.
STANDARD COUPLERS

Including

SWIVEL COUPLERS

With

SWIVEL BUTTS

Or

SWIVEL YOKES

Pitt Passenger Couplers

STEEL CASTINGS

McConway & Torley Corporation

Pittsburgh, Pa.

LUNDIE TIE PLATES

WILL INCREASE RAILWAY NET EARNINGS

By giving utmost protection to ties—they extend tie life, reduce tie renewals and save maintenance expense in regauging and resurfacing.
The Lundie Tie Plate is the only essentially flat bottom tie plate that holds gauge. The economical distribution of metal provides maximum tie plate strength at minimum cost. 200,000,000 in service prove that the Lundie stepped non-cutting, non-slip base prevents spreading of track without cutting a single fibre of the ties.

A R D C O
Rail and Flange Lubricator

increases life of rails, ties and wheels. It is economical in first cost and in the use of grease. It is dependable because lubrication is positive, and efficient because it puts the grease in the right spot.

The Lundie Engineering Corporation

285 Madison Avenue, New York
59 East Van Buren Street, Chicago

LEAKY CARS

You Know What They Cost

KENNEDY CAR LINERS

SOLVE THE PROBLEM

Prevent Leakage of Grain in Transit

NO WASTE—EFFECTIVE
INEXPENSIVE
EASILY INSTALLED

We Have Car Liners to Take Care of All Cases of Bad Order Cars

Inquiries for Details Invited

THE KENNEDY CAR LINER & BAG CO.

Shelbyville—Indiana

Canadian Plant at Woodstock, Ont.

WE NEED A CONSTRUCTIVE TRANSPORT POLICY

DURING the 70 years that the Lovell-Dressel Company has manufactured railway lighting equipment there has never been a more chaotic period in transportation. This condition must give place to efficiency and stability through the coordination and fair regulation of all transport agencies.

Only in this manner will it be possible to reestablish at once the beneficial and invigorating effect of normal railway purchases—on the durable goods industries—and on thousands of individual business enterprises throughout the nation.

LOVELL-DRESSEL CO., Inc.

Manufacturers of
LIGHTING EQUIPMENT

Arlington, N. J.

WEST DISINFECTING CO.

Manufacturers and Distributors of Products for the Promotion of Sanitation

- Disinfectants
- Insecticides
- Floor Maintenance Products
- Paper Towels
- Cleansers
- Liquid Soaps
- Deodorants
- Floor Preservatives

And appliances for their proper use

WEST DISINFECTING COMPANY
Long Island City, New York

BRANCHES IN 42 PRINCIPAL CITIES

BOLTS • NUTS • COTTERS • CAP SCREWS

MADE BY LAMSON—AND SHIPPED EVERYWHERE

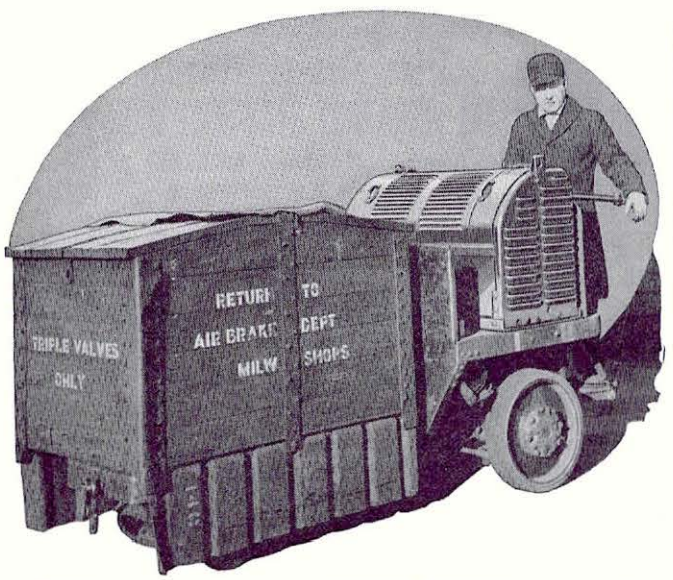
For nearly 70 years this company has been meeting the most exacting specifications of Railroads' requirements for bolts and nuts for all purposes. The products which we sell to railroads are

- Carriage Bolts
- Machine Bolts
- Lag Screws
- Nuts—all kinds
- Track Bolts
- Screw Spikes
- Frog & Crossing Bolts
- Cotter Pins
- Flat Spring Keys
- Watertight Bolts
- Rivet Bolts
- Key-way Bolts
- Dardelet Bolts
- Engine Bolts
- Stove Bolts
- Upset Forgings
- Cap Screws
- Specials

Specials for your particular application made accurately to your specifications. Standard or special products made of regular carbon steel, high carbon steel, alloy steels, brass, bronze, aluminum alloy and stainless steel, properly fabricated and correctly heat treated. THE LAMSON & SESSIONS CO., 1971 West 85th St., Cleveland, O.

LAMSON & SESSIONS

Plants in Cleveland and Kent, Ohio; Chicago and Birmingham



YOU can operate your READY-POWER equipped electric industrial trucks twenty-four hours a day if necessary. They don't require "time out" for recharging because the storage battery has been replaced with a completely automatic gas-electric power unit easily capable of handling overloads of 300 to 400 percent.

READY-POWER is easily applied to your electric industrial trucks and tractors that are now using batteries; conversion is usually made in from two to three hours and in your own plant. New electric trucks equipped with READY-POWER are furnished complete by any electric truck manufacturer.

THE READY-POWER COMPANY
3822 Grand River Ave.,
DETROIT, MICH.

A Question to the Country's Legislators

Gentlemen:

THE Railways received much Government help in the early days of their existence. On the other hand, have you realized that the Railways' competitors in their early years have received greater assistance from the taxing authorities? Has not the time arrived when all transport industries should be put on an even basis?

Will Uncle Sam call upon the Railroad Industry to pay the "three ball" penalty—cashing in of property—and thus causing Government Ownership?

OR

Will Uncle Sam be a 100% uncle and by sensible constructive legislation, give some practical aid in the form of statutes, enforced by the I. C. C., which will enable the railroads to earn a fair living competitively?

Yours very truly,

Stanley H. Smith

Dec. 1, 1934

GALE SERVICE & CONSTRUCTION COMPANY

CHICAGO

CONTRACTORS

MODERN HOT WATER, BLOW-OFF, WASHOUT and FILLING UP SYSTEMS FOR LOCOMOTIVE BOILERS

REHABILITATION AND MODERNIZATION OF EXISTING BOILER WASHING SYSTEMS FOR INCREASED LOCOMOTIVE EFFICIENCY

POWER PLANT CONSTRUCTION and POWER PLANT REHABILITATION

HEATING SYSTEMS—ALSO THE REHABILITATION OF EXISTING SYSTEMS

GENERAL PIPE WORK — WATER SOFTENING SYSTEMS — WATER SUPPLY

We invite your inquiries and offer you the benefit of thirty years experience in these lines of work

Engineering Surveys — Reports — Recommendations made without obligation

UNION SPRING & MANUFACTURING CO.

Manufacturers of

COIL AND ELLIPTIC SPRINGS,

SPRING PLATES, JOURNAL BOX LIDS,

ELECTRIC STEEL CASTINGS,

NON-HARMONIC "COIL-ELLIPTIC"

SPRING GROUP,

UNIVERSAL SPRING PLATES.

Works and General Offices

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Pittsburgh Office - 2106 Clark Building

Branch Offices:

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Chicago, Ill.
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Louisville, Ky.
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Richmond, Va.

Old Dominion SPECIAL VIBRATORY STAY-BOLT IRON

SEAMLESS—HOLLOW ROLLED

OLD DOMINION IRON & STEEL WORKS, Inc.

RICHMOND, VIRGINIA

For more than 30 years the Standard of Excellence for Wrought Iron Staybolts —Solid and Hollow Rolled—

STRANDED STAY BOLT

ELECTRIC STEEL

FASCES BRAND

OLD DOMINION IRON & STEEL WORKS, INC.

RICHMOND, VIRGINIA.

COPYRIGHT U.S. PAT. OFF.

For more than 12 years a record of 4 times longer Service Life than the best Staybolt Iron —Solid and Hollow Rolled—

Old Dominion Iron & Steel Works

FOUNDED IN 1836

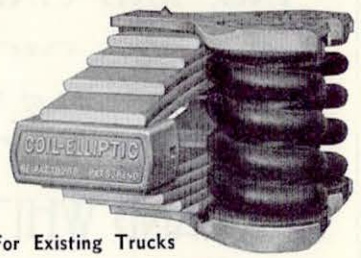
BELLE ISLE, RICHMOND, VIRGINIA

CONGRESS Can Say The Word—

For Double Truss Trucks

COIL-ELLIPTIC Truck Springs, designed to counteract synchronous spring action, greatly reduce damage to rolling stock and effect important railway economies.

Increased sales of these and other durable goods will provide jobs for millions—Action by Congress to stabilize transport competition will start railway buying and help revive prosperity over the entire nation.



For Existing Trucks

American Spiral Spring & Manufacturing Co.
Pittsburgh, Pa.

BIG BUYERS MAKE LITTLE BUYERS
RAILROADS ARE BIG BUYERS
∴ RAILROADS MAKE LITTLE BUYERS

Here is a syllogistic conclusion more dependable than most generalizations.
Our conviction is: Make it possible for RAILROADS to buy and RAILROADS will make it possible for the MASSES to buy.

GENUINE COOK WELL SUPPLIES REG. U.S. PAT. OFF.

A. D. COOK, Inc.
Lawrenceburg Indiana

DEEP-WELL COOK PUMPS REG. U.S. PAT. OFF.

TUCO

CAR FLOORING—FLOOR DRESSING
INSULATION—ROOFING FABRIC
TRAP DOORS—SCREENS

TUCO PRODUCTS CORP'N. 30 Church Street New York, N. Y.

FREIGHT CARS
HEAVY OR LIGHT CAR REPAIRS
MISCELLANEOUS CAR REPAIR PARTS

YOUNGSTOWN STEEL CAR CORPORATION
NILES, OHIO

LOCOMOTIVE COALING, SANDING, AND CINDER PLANTS

And Equipment of Superior Design

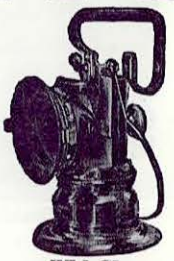
ROSS AND WHITE COMPANY
2145 Chicago Daily News Building
CHICAGO, ILLINOIS

NATIONAL CARBIDE

Y-199 Handy Light

LANTERNS and National Carbide V. G. Flarelights —the highest development in carbide lighting equipment.

Lanterns with blue rear light for car inspection — with red rear light for motor car headlights and signal lights — handy lamps and portable lights for track maintenance —standard on many railroads.



WLI-CI Lantern

NATIONAL CARBIDE SALES CORP.
LINCOLN BLDG., 60 EAST 42ND ST., NEW YORK, N.Y.

FIBRE INSULATIONS and FUSEES

In the year 1886, C. H. Whall originated fibre track insulation and made his first installation on the Old Colony Railroad.

Many insulation improvements have been perfected by the C. H. Whall Co. since that date—including the recent development of a practically *Waterproof Fibre*—unsurpassed for wet conditions!

C. H. WHALL CO.
170 Summer Street
BOSTON, MASS.

Railway Car Hardware

Specialties:—Door Locks—Hinges—Baggage Racks—Sliding Door Hangers and Tracks

JAMES L. HOWARD & CO.
P. O. Box 996 HARTFORD, CONN.

GET TOGETHER DEPARTMENT

EDUCATIONAL

THE Railway Educational Bureau, Omaha, Neb., offers a distinctive education service for Supervisors and other employes. Write for FREE Special Bulletin.

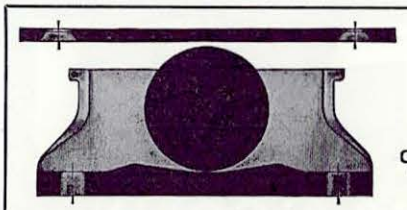
FOR SALE

Mr. Car Operator
Recommend Buy Use
SERVICE-TESTED FREIGHT CAR PARTS
and reduce your "Material" costs at least 50%! ! !
Iron & Steel Products, Inc.
Frank Parker, Pres.
Railway Exchange, Chicago

POSITION OPEN

SALARIED POSITIONS $2,500 to $25,000—This thoroughly organized advertising service of 25 years' recognized standing and reputation carries on preliminary negotiations for positions of the caliber indicated, through a procedure individualized to each client's personal requirements. Several weeks are required to negotiate, and each individual must finance the moderate cost of his own campaign. Retaining fee protected by a refund provision as stipulated in our agreement. Identity is covered and, if employed, present position protected. If you have actually earned over $2,500, send only name and address for details.

R. W. BIXBY, Inc.
102 Delward Bldg., Buffalo, N. Y.



STUCKI SIDE BEARINGS
Manufactured by
A. Stucki Co.
Oliver Bldg., Pittsburgh, Pa.
Canadian Representatives
The Holden Co., Ltd.,
Montreal, Can.

This shoe does the work while your engines and cars are in service.

SAVES TIME
SAVES LABOR
SAVES MONEY

WHEEL TRUING BRAKE SHOE CO.
Detroit Michigan

Have You Changed Your Address?

Notice of change of address of subscriber should reach the office of Railway Age, 30 Church St., New York, ten days in advance to insure delivery of the following issue to new address. In sending notification of change always include the old address as well as the new.

Name ..... Old Address .....

New Address .....

..... Position ..... Company .....

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UNION SWITCH & SIGNAL COMPANY
Swissvale, Pennsylvania

GENERAL RAILWAY SIGNAL COMPANY
Rochester, N. Y.

History in the Making

The Union Pacific streamlined train M-10001, which left Los Angeles October 22, 1934 at 10 P.M. Pacific time, arrived at Grand Central Terminal, New York, October 25 at 9:55 A.M. Eastern time, establishing a new transcontinental railroad record of 56 hours and 55 minutes.